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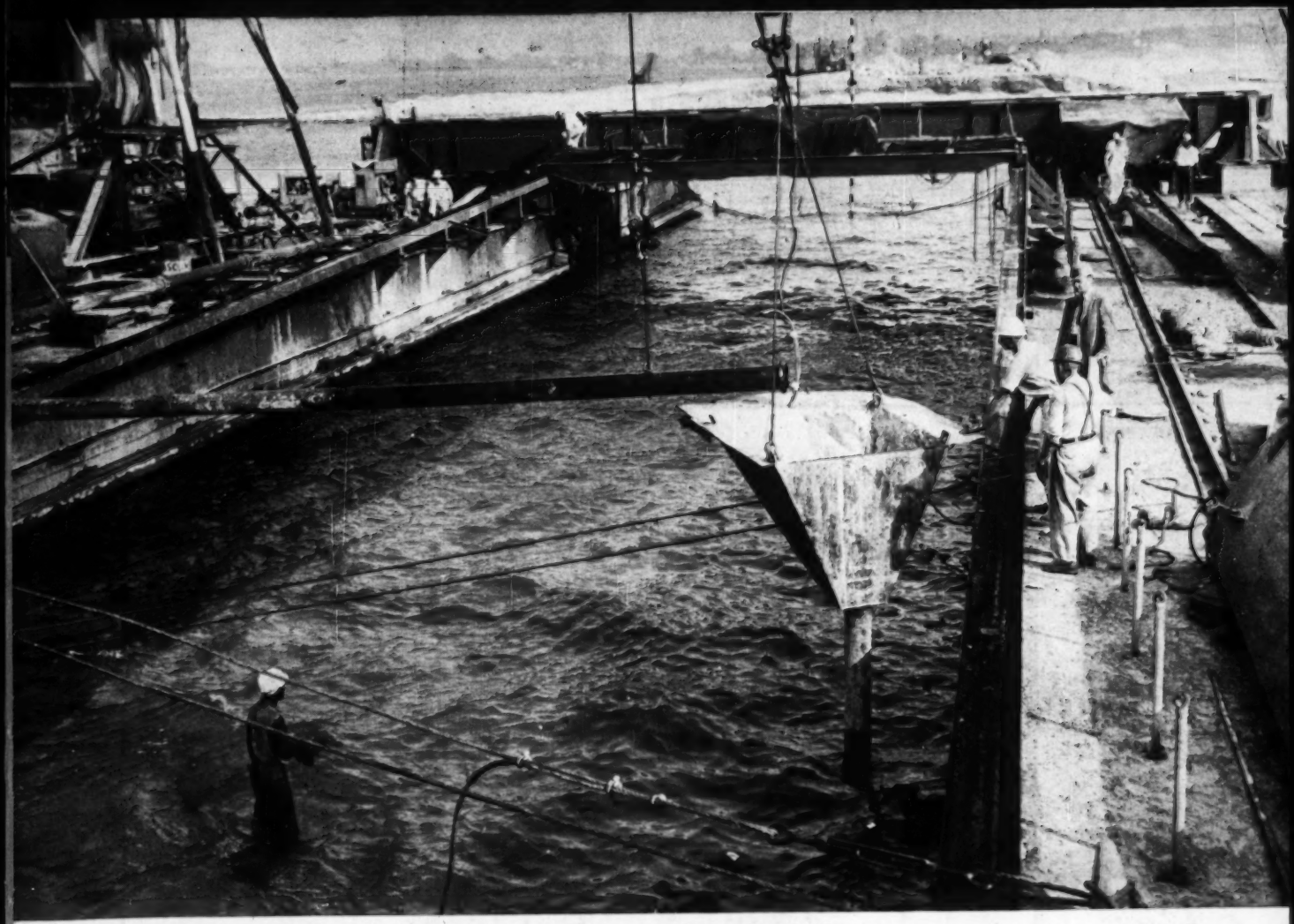

Hampton Roads, from surface to bottom *(p. 30)*

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. . . designed to harmonize with Detroit Technical Center

A special elevated water tank, of outstanding beauty, was erected for an installation north of Detroit. The 250,000-gal. elevated tank having an overall height of 138 ft., was designed, fabricated and erected by Chicago Bridge & Iron Company. Constructed of highly-polished stainless clad steel on the outside it harmonizes with the materials, architecture and landscaping of the Technical Center.

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Flexibility of Modern Chrysler High-Speed Industrial Engines Proved in 375 Ampere Arc Welder

Here pictured in construction is a New York City garbage disposal dump located on the North River near 135th Street. When completed, trucks will drive up its ramps and discharge loads into cubicles located over scows. Scows will then convey refuse to a watery grave.

On this job, three P&H WN-302 Arc Welders have been putting in five 8-hour days every week welding cubicles, not only joining steel members but also giving them added strength for years to come. Chrysler Ind. 30 Engines power Harnischfeger 375 Amp. Welders supplying enough extra power to compensate for possible generator loss and still provide reserve for overload.

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In considering power for your equipment, remember Chrysler offers its industrial engines built to meet the needs of the equipment with such items as gyrol Fluid Coupling; Chrysler Industrial Torque Converter; 3-, 4- or 5-speed transmissions; heavy-duty clutch and power takeoff; velocity, belt or gear-driven governors; gas, butane and propane burning carburetors available for factory installation.

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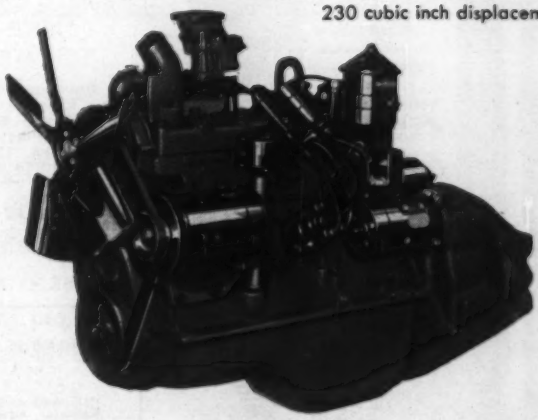
230 cubic inch displacement



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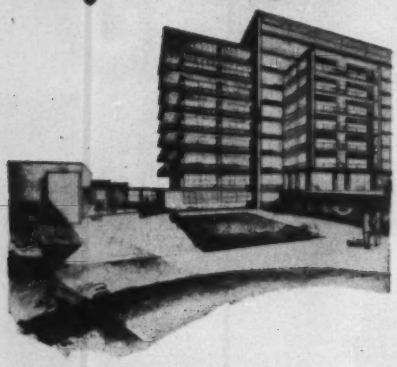
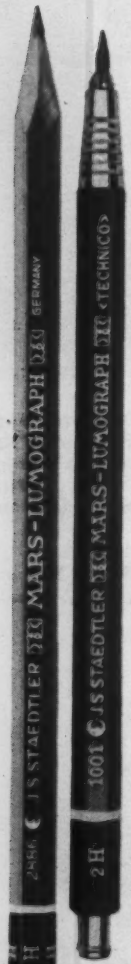


this renderer's technique?



The pencil technique of a top flight renderer is as distinctively and individually his as his signature. Yet the work of so many of these fine artists has one thing in common — it is done with Mars-Lumograph imported drawing pencils and leads. Renderers find Mars the perfect pencil for every step of the job. Whether you are rendering, detailing, or making working drawings, get the imported Mars-Lumograph or the Mars-Technico push-button lead holder and drawing leads. You'll be glad you did.

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Robert F. Boger
Publisher

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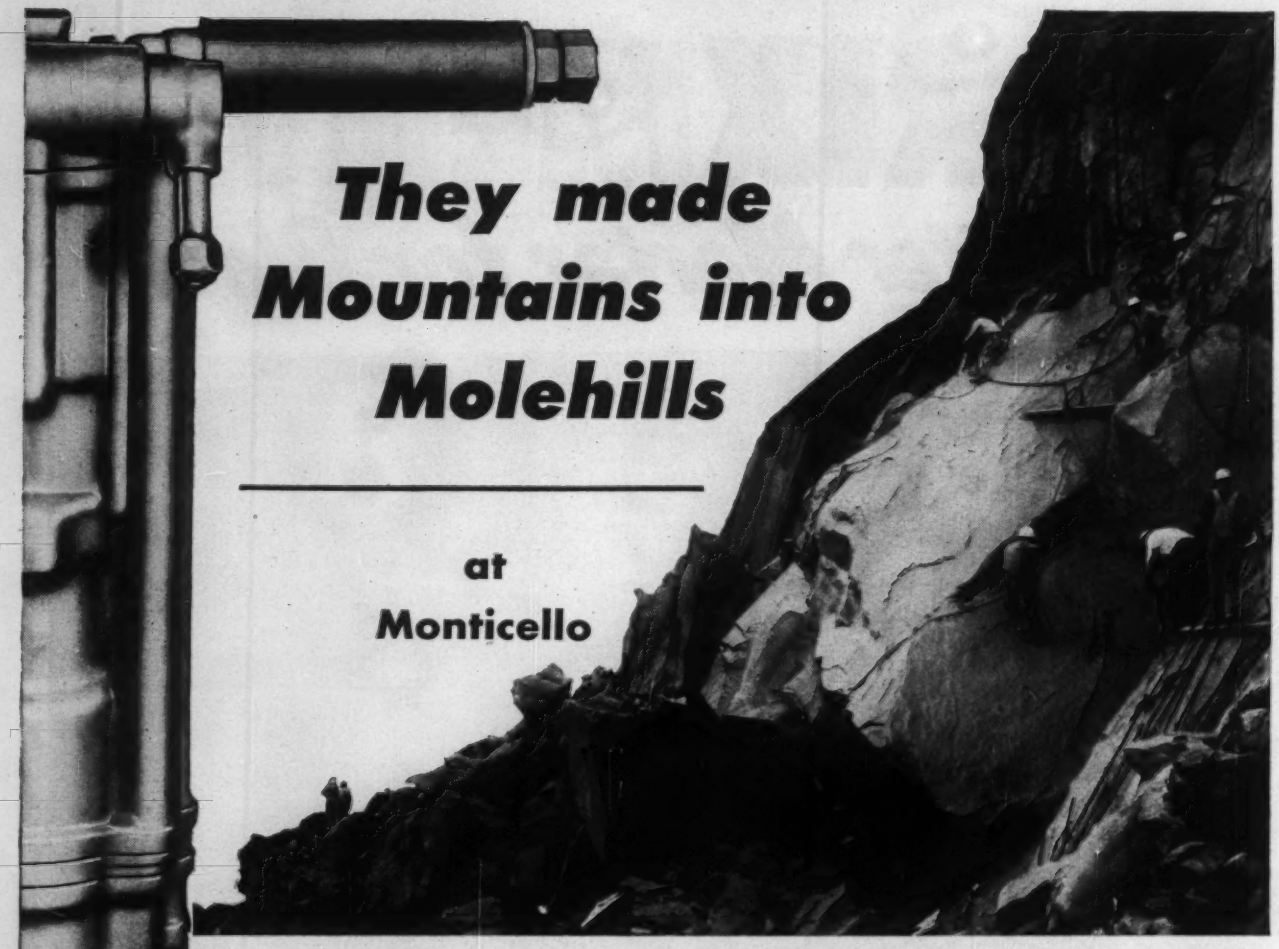

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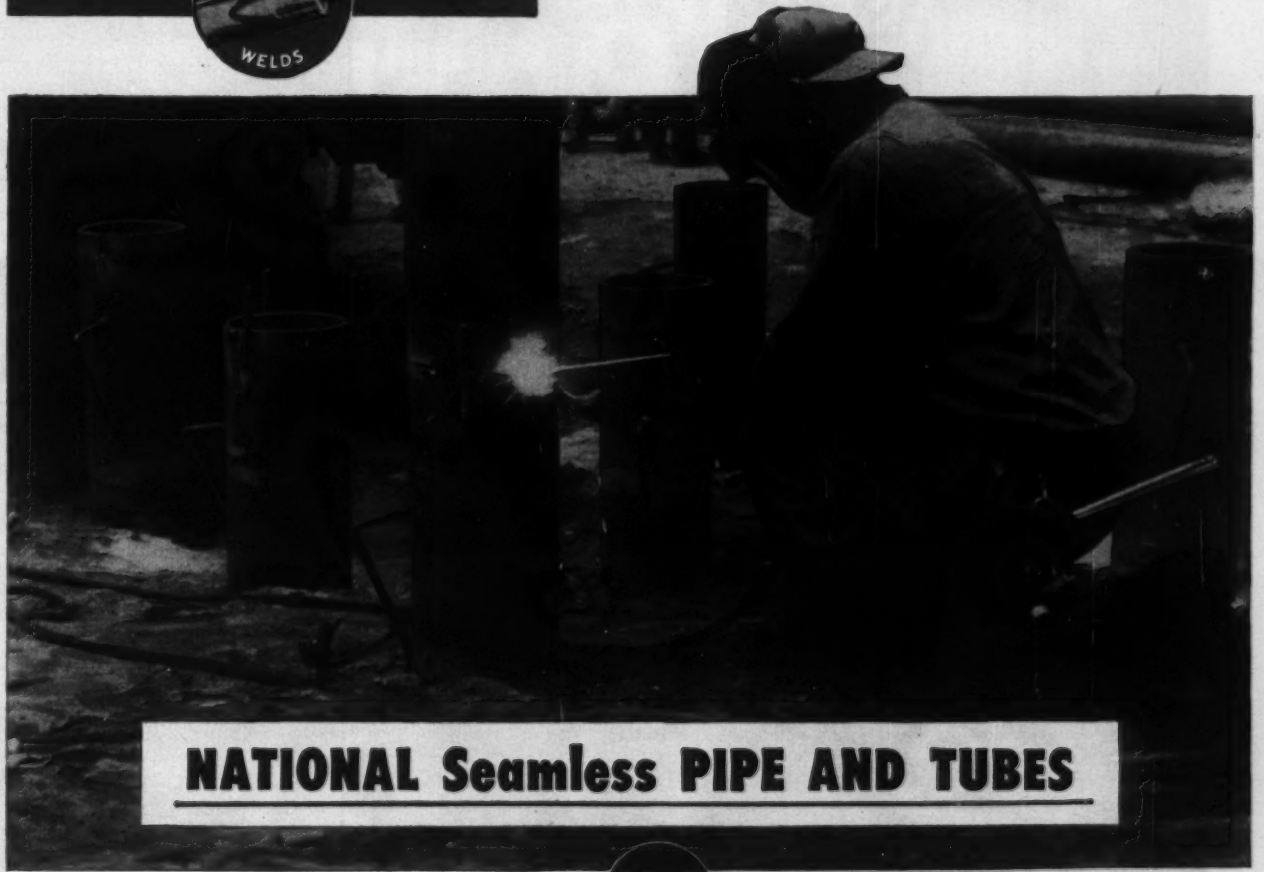

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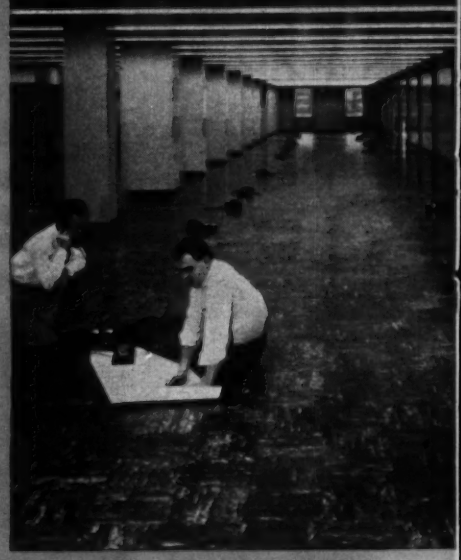
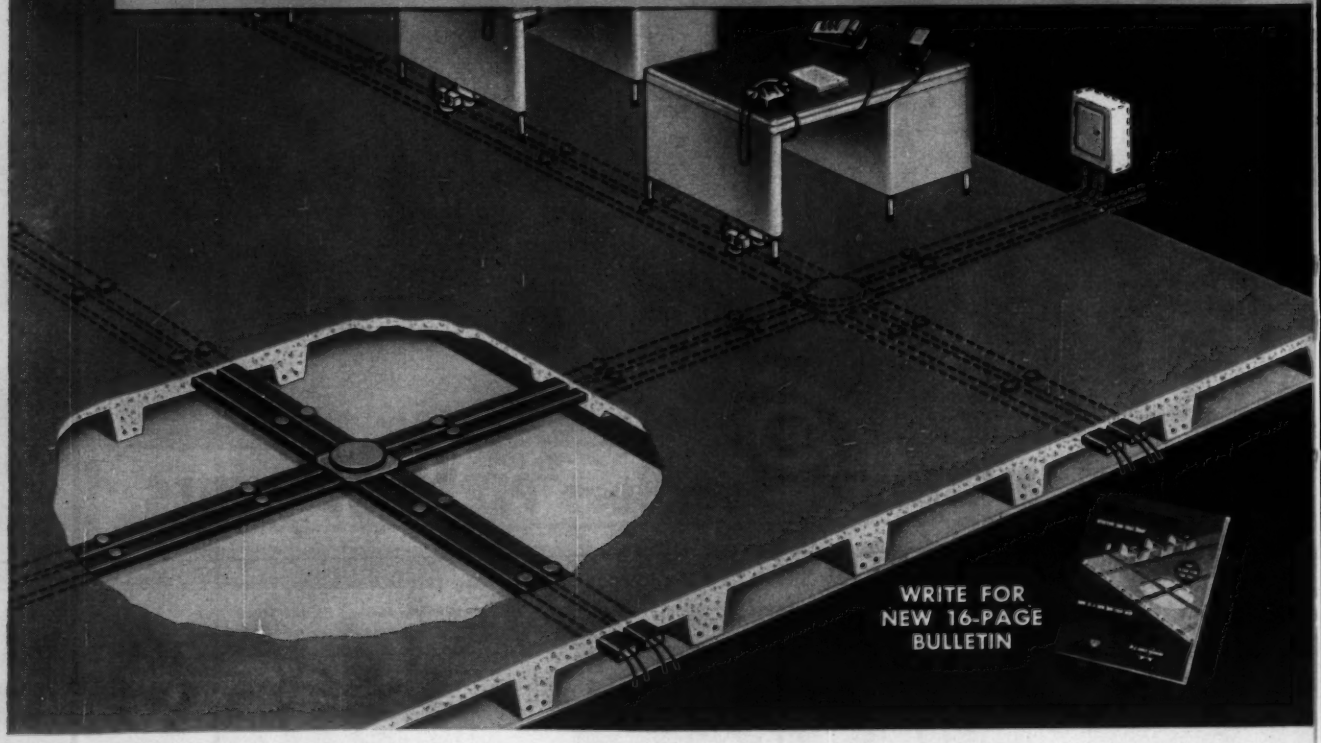


Connecting some of the 1500 telephone outlets installed in the R/C Duct Floors.



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Mr. F. D. Schaaf, Superintendent of Properties, Nationwide Insurance, Columbus, Ohio.

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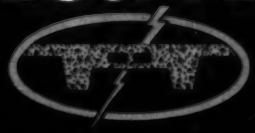

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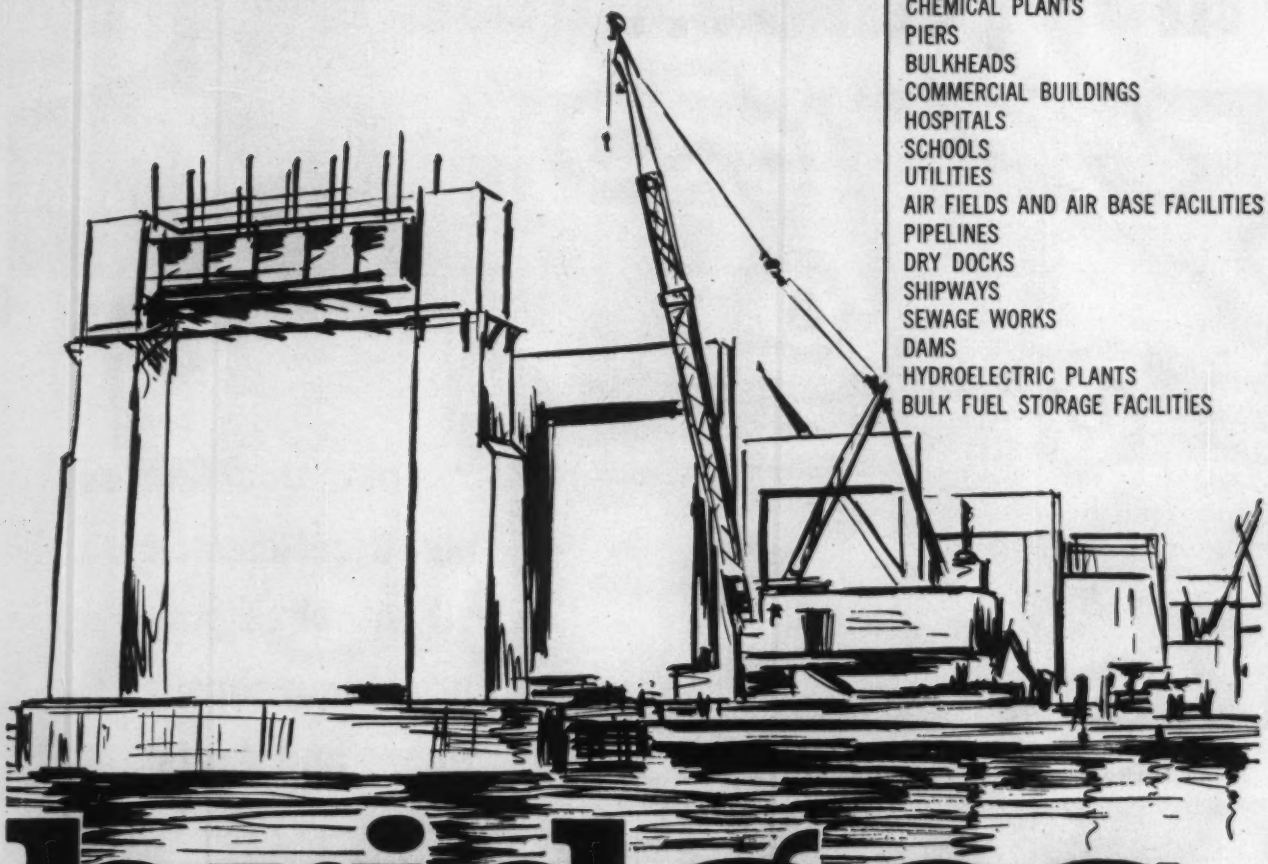

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READER COMMENT

False Economy

SIR: A news report in ENR June 9, p. 24, described the difficulties that have beset the Ohio Turnpike Commission because of the large volume of work that has been distributed among subcontractors by the prime contractors. Confusion, delay and extra expense have been suffered as a consequence.

The precedent for the illogical practice of combining grading and structure work under the same contract has been established by many state highway departments and followed by various turnpike commissions. Presumably there are several reasons for the custom:

(1) The grading on a given length of highway frequently over-shadows the structures when a comparison is made on the basis of cost or volume.

(2. Administrative costs to the owner may appear to be lowered by decreasing the number of prime contracts.

(3) Some simplification results from reducing the number of prime contracts and making one contractor responsible for a larger number of items.

(4) Apparently, on the assumption that grading contractors are able to obtain lower bids for structures than the owners are able to secure, it has been claimed that economy is realized.

Insofar as I am aware, it has never been claimed that a better quality of work resulted from the practice, and it is my opinion that inferior workmanship frequently has been the result. Prime grading contractors, naturally seeking the lowest obtainable sub-bids, have often not found it feasible or expedient to ascertain the qualifications of subcontractors. Poor progress and workmanship frequently have resulted.

Unless the disparity is great; that is, unless there is a negligible quantity of structure work which is closely related to the progress of grading (such as concrete headwalls, catch basins, drop inlets, etc.), the mere comparison of volumes does not seem to be sufficient justification for lumping the two entirely different types of work under one contract.

Since there is, of necessity, a difference between the technical qualifications and experience of the owner's engineers and inspectors who are used on grading and those who are used on structures, it does not seem that the inclusion of the different types of work under one contract could effect

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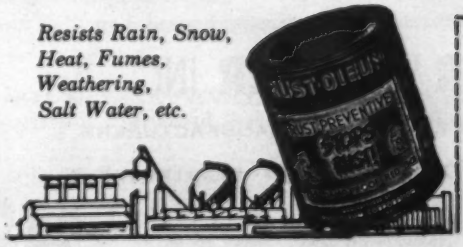

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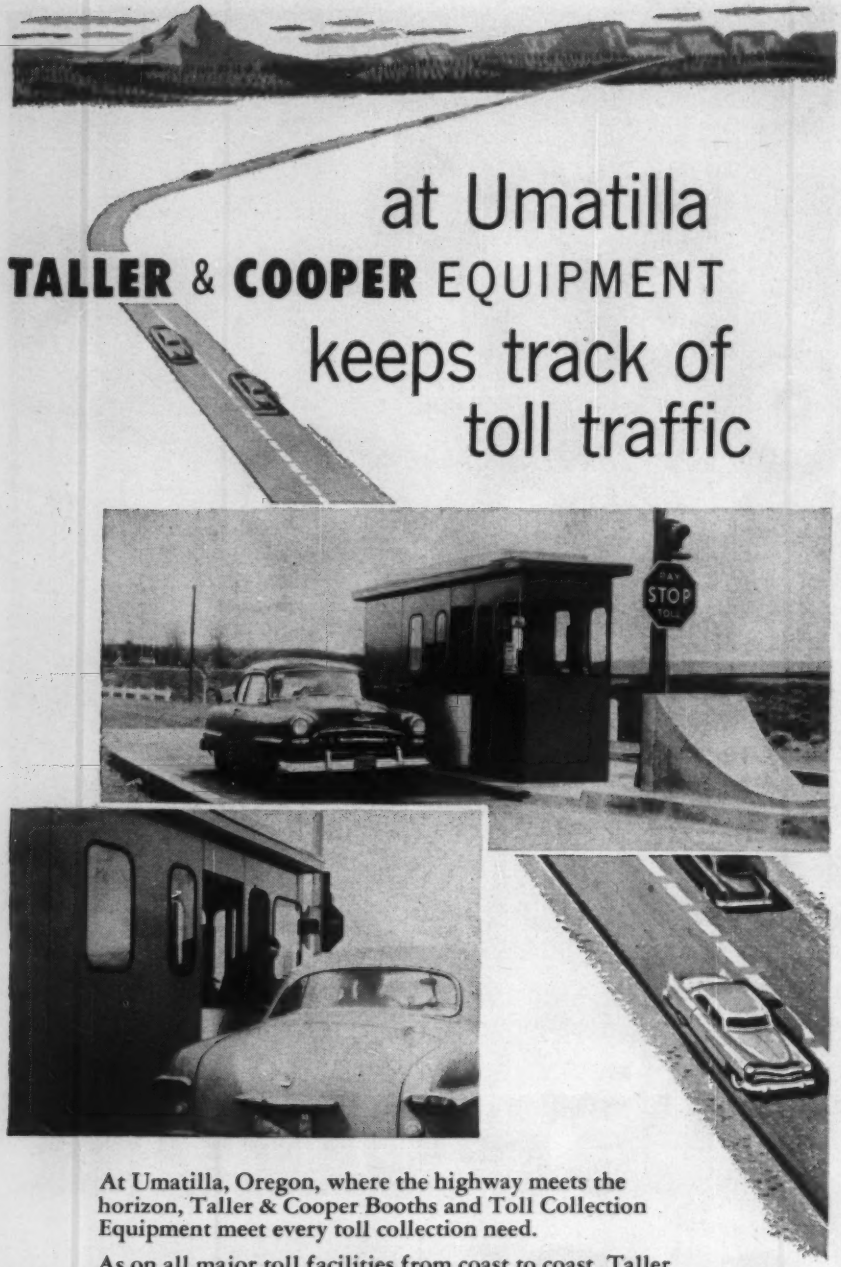

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READER COMMENT

savings in administrative costs by reducing personnel.

The apparent simplicity that is realized by combining the different types of work under one contract is largely a matter of appearance that results from shifting from engineer to prime contractor some of the responsibilities which rightfully and properly are those of the engineers; i.e., the coordination and scheduling of various types of work that must be performed simultaneously or in proper sequence to avoid interference and delay.

Any savings effected in the cost of structures are likely to be more apparent than real. By unbalancing his bid, it is possible for a prime contractor to put the profits from structural items into the prices bid for grading work. Such unbalancing, ordinarily resorted to for the purpose of realizing sufficient profit early in the life of a job to reduce financing costs, is wholly ethical when not carried to extremes. Low structure prices that may be exacted from subcontractors who cannot qualify to bid as prime contractors may prove to be no bargain.

There are plenty of qualified, responsible structure contractors, and the remedy for the evils that result from combining different types of work under one contract is not difficult to find:

(1) Advertise and award separate contracts for grading and structures.

(2) Determine in advance which work should be done first and provide for performance in a sequence that will minimize interference and cross claims for delays.

(3) Where the simultaneous performance of structure work and grading will be essential, bring this out clearly in the specifications so that the contractors may be warned in advance of the necessity for coordinating their activities and reducing interference.

It is likely that most grading contractors would consider it a welcome relief to be able to avoid the necessity for obtaining sub-bids for structure work, and they probably also would be glad to avoid responsibility for the progress and quality of a type of work that is strange to them.

J. S. Lewis, Jr.
Lewis and Bowman, Inc., Contractors, Goldsboro, N. C.

Better Dam Designing

Sir—Your article, Boldness in Hydro Design (ENR June 30, 1955 p 34) was most interesting. It reminds me

(*Continued on page 14*)

NOVA SCOTIA PENSTOCK

Engineered and installed by the Nova Scotia Power and Light Company, Ltd., this 66" line was covered from 4' to 17' deep. Pipe was made by Halifax Ship Yard; pipe and couplings were bituminous coated. Wall thicknesses range from 5/8", 1/2", 9/16" to 5/8" for line pressures of up to 195 psi.

BIG JOB, SMALL WRENCH

From a reservoir served by the Nictaux River, 100 miles southwest of Halifax, water now flows via canal and wood stave pipe to this 3312' Dresser-Coupled steel penstock.

The lighter weight, high-strength steel pipe was delivered to the job with Dresser Coupling middle rings and followers already in place. It was a simple matter to swing the long pipe lengths into the ditch. Then workmen put in the bolts and tightened the end nuts. *A wrench was the only joining tool required.*

That's how it is on all Dresser-Coupled jobs. No expensive skills or equipment are needed. Work can proceed in any weather at an average of only two man-minutes per bolt. And there's no need for exact pipe fitting or alignment. The resilient rubber gasket in every Dresser Coupling absorbs line stresses, strains and movement . . . permits expansion and contraction . . . keeps joints bottle-tight and trouble-free for life!

***BEFORE YOUR NEXT PENSTOCK PROJECT,* write for helpful, interesting engineering data on the many successful and varied Dresser-Coupled, steel-pipe penstock installations.**

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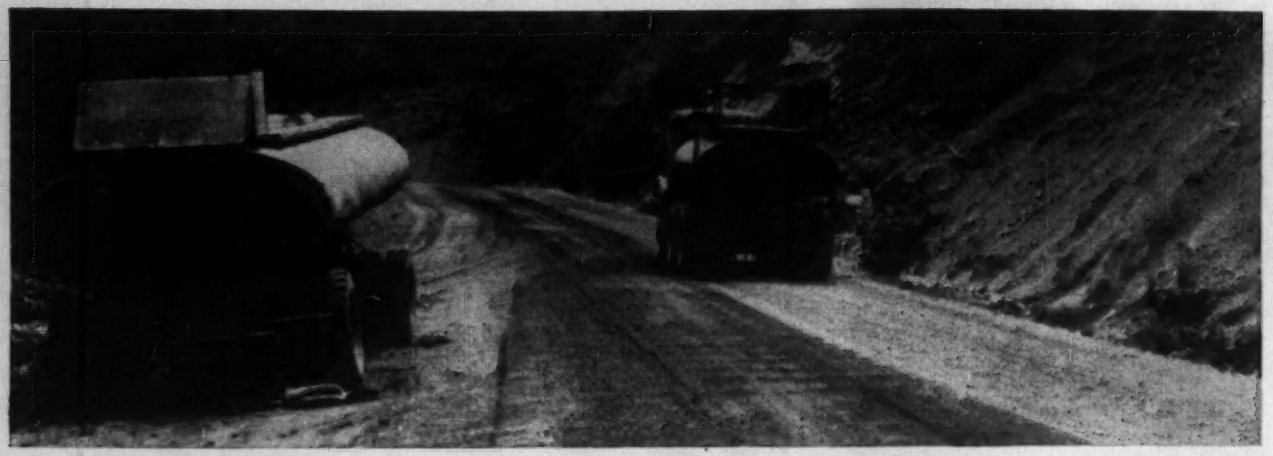
Dresser Manufacturing Division, 319 Fisher Ave., Bradford, Pa. Warehouses: 1121 Rothwell St., Houston; 101 S. Airport Blvd., S. San Francisco. Sales Offices also in: New York, Philadelphia, Chicago, Denver. In Canada: Toronto and Calgary.



WATER-WAGONS like those shown here, a blade grader and a roller were the only pieces of equipment needed to maintain good, stable haulroads by the Diluted Bitumuls Base Treatment method.

Simplified Bitumuls Base Treatment Slashes Cost on Heavy Duty Haul Roads

West Coast Logging Firm Benefits from Use of Diluted Bitumuls®

One of the toughest jobs a road builder faces is maintaining haul or access roads for heavily loaded vehicles at a ton-mile cost compatible with available funds and within the scope of equipment on hand.

Costs Down 50%

One West Coast logging company now believes it has an answer to this difficult problem. Last year, they used what is known as the "Diluted Bitumuls Base Treatment." This has not only increased the serviceability of these roads, but has also actually cut their costs more than 50% below that of the previous best method used.

Previous Methods

Back in 1950 this company used an asphalt cut-back with 10% Diesel oil added, at a cost of $620.00 per mile. Cost prohibited the application of aggregate cover and considerable pickup and raveling under traffic resulted. Three months of penetration patching with Bitumuls emulsified asphalt was required to keep this road in operation. No costs were kept on this maintenance work.

In 1951 a heavier application of the cut-back Diesel mixture was used, at a cost of $650.00 per mile. A ¾ inch application of ⅛" crushed rock was placed at certain sections where pickup and raveling was severe. Patching was again required to maintain this road under the tough traffic conditions.

In 1952 the company tried using hot applied fuel oil and the same type of aggregate cover. This combination gave longer, trouble-free wear, but the cost was still higher (nearly $1,000 per mile).

Diluted Bitumuls Treatment

In both 1953 and 1954, a mixture of 10% Bitumuls SS-1 and 90% water was used at 1200 gallons per mile in three applications of 400 gallons each. *Total cost of this treatment was $294.00 per mile.* Observations after two years have indicated that the base established by this treatment required no aggregate cover and did not pick up or ravel under traffic. Dust, which formerly constituted a real hazard, was held to a minimum, and when it did occur was of a heavy and quick-settling type.

Many old timers will tell you that the Diluted Bitumuls Base Treatment is not new. It has been used in other parts of the country under various names, but the methods employed are much the same. All that is required is a water wagon, a mixing blade, (or motor patrol) and a roller. Material is windrowed; the diluted Bitumuls applied by sprinkler trucks and then mixed, spread and compacted. After compaction the road can be opened to traffic.

Full information on the Diluted Bitumuls Base Treatment and on other types of Bitumuls construction can be obtained by calling our nearest office.

WATER-WAGON applies Diluted Bitumuls to base material.

BLADE GRADER is used for mixing and spreading ahead of compaction.

THREE-WHEEL ROLLER compacts base to a smooth, dense finish.

AMERICAN Bitumuls & Asphalt COMPANY

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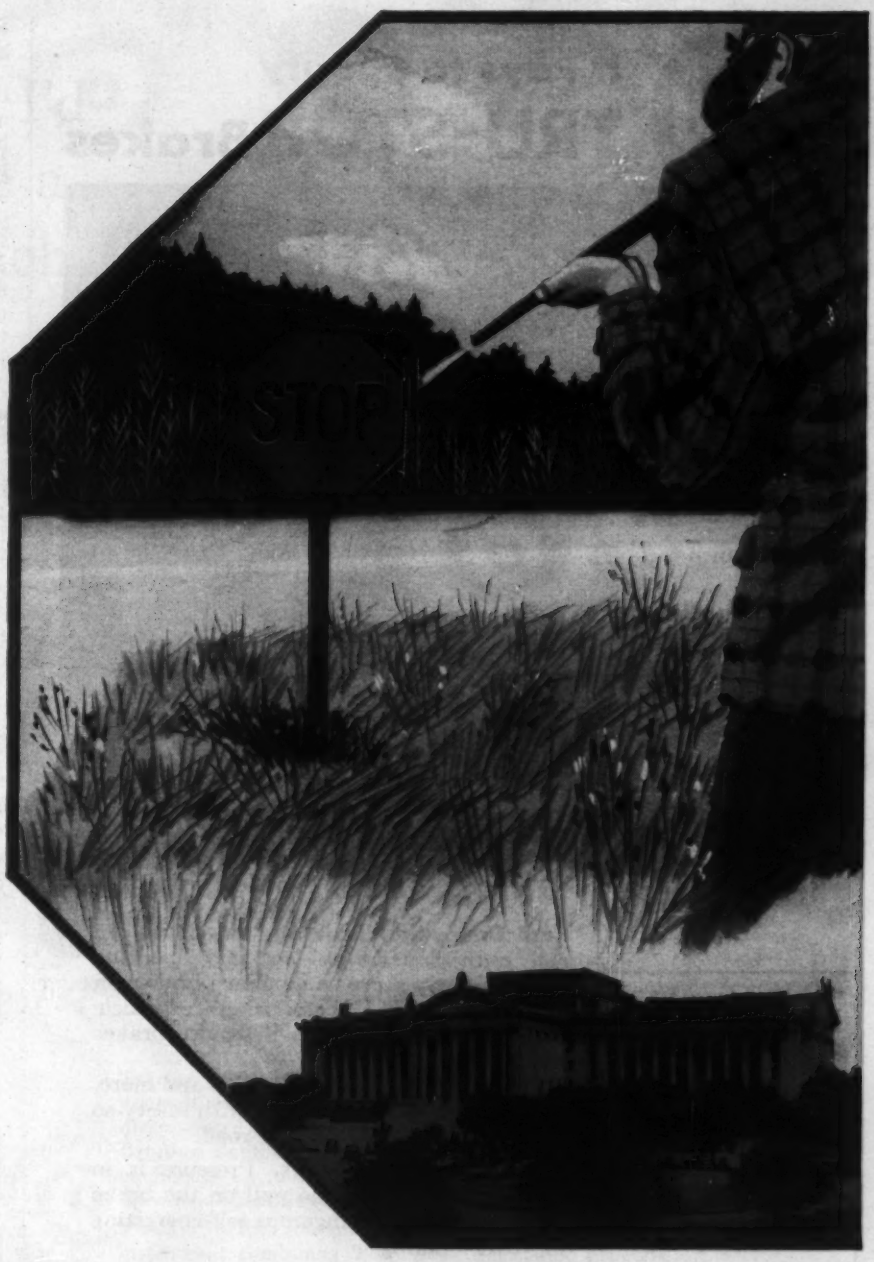
E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Mobile, Ala. Cincinnati 38, Ohio
Columbus 15, Ohio Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La. St. Louis 17, Mo.
Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore. Washington 5, D. C. San Juan 23, P. R.

Vandalism cost taxpayers $50,000 a year until Oklahoma switched to signs of Alcoa® Aluminum



Sharpshooters who perforated steel traffic signs used to put a $50,000 hole in Oklahoma's annual highway budget. Then the Oklahoma Highway Department found that while they couldn't stop target practice, they could end the ruinous rust that followed by switching to signs of Alcoa Aluminum.

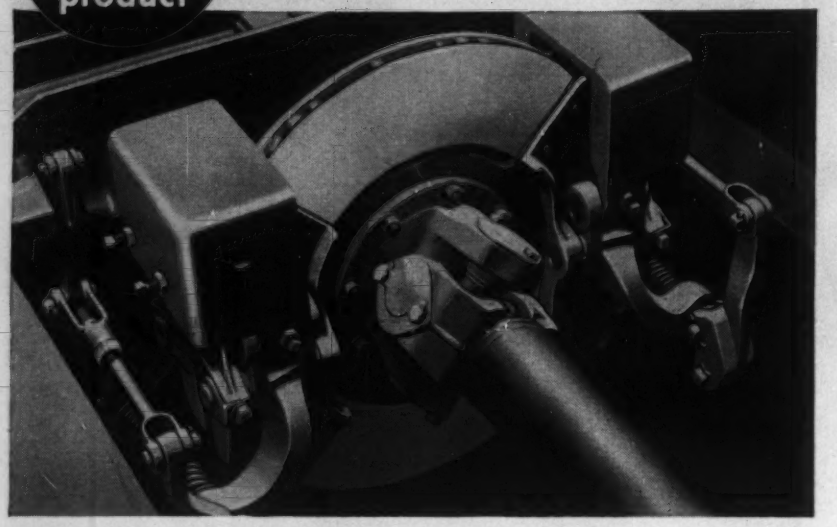
Because they defy corrosion, even when a rifle slug tears through the message film, Alcoa alloys put a stop to Oklahoma's greatest cause of sign destruction. Weighing only half as much as steel, they made handling and erection easier. And all eight division sign shops reported that the excellent workability of aluminum eliminated tough problems in fabrication.

Oklahoma is only one of 28 states where Alcoa Aluminum cuts sign costs. The advantages they gain can be yours if you call your Alcoa Distributor. He stocks aluminum sign blanks in a variety of shapes and sizes . . . carries aluminum sheet if you shear your own blanks . . . furnishes Alcoa Aluminum Fasteners for trouble-free installations. Finished signs of Alcoa Aluminum are also available from leading traffic sign manufacturers. Aluminum Company of America, 1979-J Alcoa Building, Pittsburgh 19, Pennsylvania.

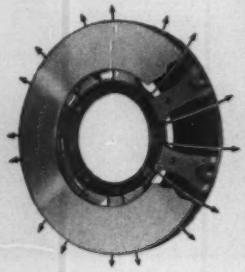
Your Guide to Aluminum Value

an ACCO product

It Pays to Specify TRU-STOP Brakes



because they give you Real Emergency Braking...Smooth, Positive Stops...Safe Parking... and Lower Service Costs



Longer Lining Life

• The terrific heat generated in braking cuts lining life. TRU-STOPS quickly dissipate this heat. Most of the disc is exposed to the air even during braking. And a cooling jet of air circulates through the disc, prolongs lining life.

Real Emergency Braking. TRU-STOPS *are real emergency brakes—not just "parking brakes."* They serve as auxiliary brakes on long down-grades and can bring the vehicle to a smooth, quick stop if service brakes suddenly fail.

In fact, TRU-STOPS can do this and more. They can handle the vehicle with safety so it can be removed from the road.

Smooth, Positive Stops. Pressure is in direct proportion to the pull on the brake lever. There is no dangerous self-energizing or "over-braking."

Safe Parking. TRU-STOPS hold on grades—prevent "parking brake" accidents.

Lower Service Requirements. TRU-STOPS are mounted directly on the drive shaft. Their simplicity of design and accessibility reduce maintenance requirements. Relining or adjustment is a simple job for any mechanic with ordinary tools. It is not necessary to drop drive shaft.

Specify TRU-STOPS for factory installation on your next vehicle.

This Booklet gives the complete story on TRU-STOP Brakes. Send for your copy today

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READER COMMENT

that during recent years in the West much has been heard of "bigger and better dams", when the real need is for "better designed dams."

It is a well known fact that many of our concrete dams are "over designed". This writer assisted in building a solid gravity type dam, completed in the year 1913, which had a maximum height of 90 ft and a maximum base thickness of 150 ft.—typical of the large safety factor applied in American designing of 40 or 50 years ago. There has been some improvement but not enough.

Let's have more articles on foreign design. It is a very healthy thing for the engineering profession, and will eventually aid, as do the student exchange programs between the U. S. and foreign nations, in a better national understanding of the know-how of doing things.

F. E. Ramsey
Columbia Falls, Mont.

Too Much Load for Strands

Sir—Referring to the picture in ENR Aug. 18, p. 28, titled, "Factory turns out record-breaking beams," I would like to know how one can apply a prestress of 500,000 lb with sixteen $\frac{3}{8}$-in. strands, and indeed, how one can prestress beams of such size at all with so little steel. Is the figure 16 in error, or was there additional post-tensioning?

Ernest Nussbaum
Bridge Designer
Michael Baker, Jr., Inc.
Washington, D. C.

[Editor's Note—There were additional tendons—at least twice as many strands.]

CALENDAR

New England Water Works Association, Lake Placid Club, Lake Placid, N. Y., Sept. 18-22.

Atomic Industrial Forum, Sheraton-Park Hotel, Washington, D. C., Sept. 27-29.

International Road Congress, Dolmabahce and Yilditz Palaces, Istanbul, Turkey, Sept. 26-Oct. 16.

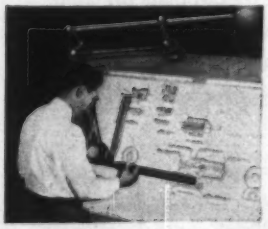
Building Research Institute, conference on metal curtain walls, National Academy of Sciences, Washington, D. C., Sept. 28-29.

American Public Works Association, congress and equipment show, Milwaukee, Wis., Oct. 2-5.

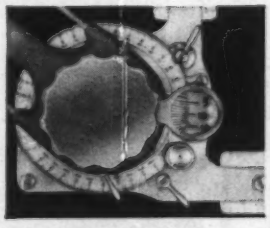
Federation of Sewage and Industrial Wastes Associations, Ambassador Hotel, Atlantic City, N. J., Oct. 10-13.

"And I Said I'd Never Use a Drafting Machine"

"That Was Before I Tried a Bruning Equipoise Drafter!"



Bruning Counterbalanced Drafters and Bruning Track Drafters provide fast, easy, accurate drafting on vertical boards and on extra-large drawings.



Bruning Equipoise Drafters are available with either the Civil Engineer protractor head, shown here, with its special azimuth scale, or the Standard protractor head.

Take a tip from an increasing number of draftsmen who, perhaps like yourself, were reluctant to try any drafting machine or had been disappointed in a conventional type drafter. These men now report: Bruning Equipoise Drafters cut drafting time over conventional equipment up to 40% on most jobs, up to 50% on some structural drawings—beat any other drafting machine they ever tried.

But prove it to yourself! See how fast you'll work with one precision instrument combining T-square, straightedge, triangle, protractor, and scales. Feel how the patented Equipoise mechanism eliminates any drift from gravity, literally makes the drafter "float" into place. Find how easy it is to rotate, turn, and lift this drafter—all with the left hand. At the same time, operate the Touch Control button with your left thumb to set the drafter automatically at any of 24 commonly used 15-degree increment angles. Don't overlook the special scale lock that makes it easy to change the scales, holds the scales rigid.

Your own test will convince you of the superiority of a Bruning Equipoise Drafter. Mail coupon today!

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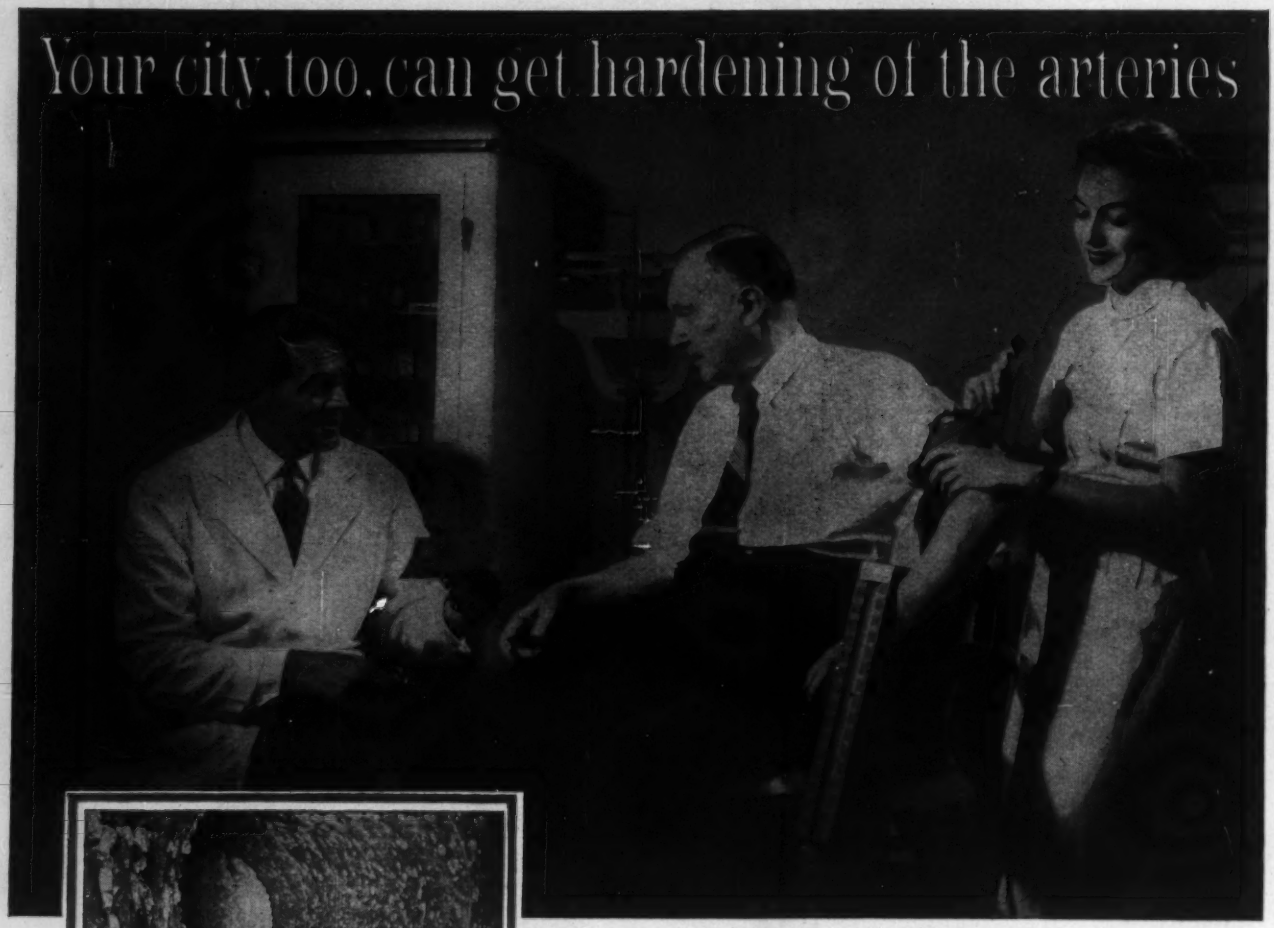
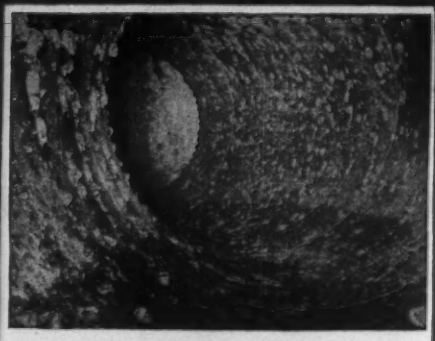
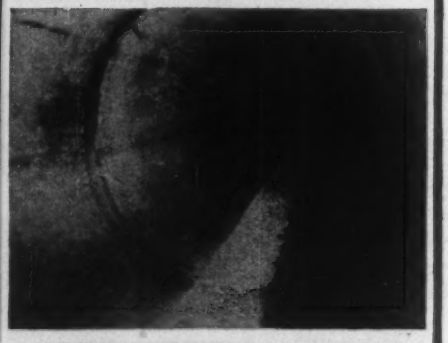
Your city, too, can get hardening of the arteries





TUBERCULATION HAS SERIOUSLY REDUCED THE CAPACITY OF THIS PIPELINE.



TWENTY YEARS OF SERVICE HAVE NOT REDUCED THE ORIGINAL HIGH CARRYING CAPACITY OF THIS LOCK JOINT CONCRETE PIPELINE.

Water pipes, like blood vessels, can become congested and their efficiency seriously impaired by deposits on their inner walls. To avoid this "hardening of the arteries", far-sighted hydraulic experts insist on added protective linings for pipeline materials adversely affected by aggressive water.

Such costly protection is unnecessary in LOCK JOINT CONCRETE PRESSURE PIPE. The dense inner wall of this virtually ageless pipe is inherently immune to tuberculation, and consequently maintains its initial high carrying capacity *permanently*.

Its great durability and trouble-free service assure you the most economical and efficient pressure pipeline obtainable.

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

READY TO BUY—Like many a private citizen, the federal government has long cast an envious eye on the theory of installment plan purchases. But, unlike the nation's householders, the federal government wanted to adapt the plan to federal buildings that are almost certain to be used for a reasonably long time, i.e., post offices, courthouses, administrative offices for federal agencies. Congress passed the plan—dubbed "Lease-Purchase"—in 1954. But the program has been slow to get started. This week, ENR's Washington sources had some good news for the contractors who will build these projects—a number of them are nearing the bid stage, and more will follow quickly. For an up-to-date check on what's happening now to "Lease-Purchase" see page 21.

AFTER CATASTROPHE, THE CLEANUP—To much of the nation, the late August northeast flood disaster is history; to those in the stricken areas, it is still a grim reality. Repair and rehabilitation has been miraculously fast in some areas; in others it is painfully slow. For a first-hand report on the aftermath of the flood, see page 25.

NEW HIGHWAY PLAN—Failure of Congress to pass an urgently needed expanded highway construction program has drawn fire from many responsible quarters. Last week, the Western Association of State Highway Officials, meeting in Wyoming, stepped up to the firing line to take some shots of their own. But, WASHO didn't stop there. Realizing that the question of "Who pays for the highways?" had caused a legislative roadblock, WASHO turned to the possibility of a compromise, adopted a resolution embodying a six-point plan offered by R. H. Baldock, Oregon's State Highway Engineer. For a report on the Baldock plan see page 24.

AEC EXPANSION—The Atomic Energy Commission this week announced a $13.5-million construction program to build two new buildings and modify three others at the agency's top-secret Rocky Flats, Colo., installations, 17 mi northwest of Denver. Catalytic Construction Co., of Philadelphia, has been retained as architect-engineer for the project. Part of the construction will be on a competitive bid basis. For other developments in atomic energy see page 23.

MATERIAL SQUABBLE—The Cincinnati, Ohio, Building Commission is at sixes and sevens with the Board of Education. Reason: The Board of Education wants a building code revision that would permit the city to use plastic skylights and domes in local school construction. The board feels it has proved economical for other Ohio cities. But Building Commissioner Fred McMinn and his department are fighting the revision. They claim the material burns quickly, and is structurally insufficient.

Armco pipe piles

Drive Straight...

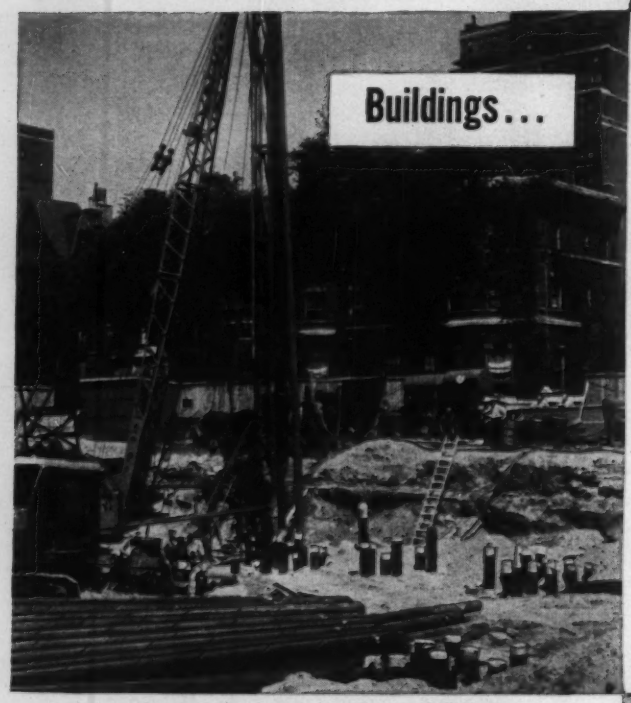
and you can

prove it

Armco Piling being driven for the foundation of a grade separation structure on the Indiana Toll Road.

The continuous spiral seam method of manufacturing makes Armco Steel Pipe Piling straight and round—and high collapse resistance keeps it that way. What is more, you can check the driven pile for alignment and watertightness. Inspection is simple with either a light or mirror.

Armco Pipe Piles are available in a wide range of diameters and wall thicknesses. Pile lengths are limited only by handling and shipping facilities. Write us for complete data. Armco Drainage & Metal Products, Inc., Welded Pipe Sales Division, 5555 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.



Long length of Armco Piling is in the leads, ready to be driven for apartment building foundation on Lake Shore Drive, Chicago.

Primary settling basins for the Steubenville, Ohio, sewage treatment plant will rest on Armco Piling.

ARMCO®

Armco Steel Pipe Piling

WASHINGTON OBSERVER

Construction chiefs are under pressure to cut spending this year to help the Administration balance the budget. Military construction's $1.9-billion of spending is a real target. Republicans are combing every military program to save at least $1 billion between now and June 30 to meet their present spending goal of $34 billion—and they'd like to have the military chiefs contribute to the additional savings needed to help balance the budget by next June.

Basic military building program isn't supposed to be cut—the drive is to find savings by postponing some contract awards or otherwise finding bits and pieces of construction that can be either dropped or delayed for a while.

Delay in awarding the $2 billion of new contracts won't cut spending much by June 30. Construction officials say only small amounts can be pushed back until next fiscal year. Only delays now seen are projects that can be deferred without delaying the target date of 1957 for the 137-wing Air Force.

Construction chiefs are against slowing down existing jobs—they know this pushes final costs upwards. Secretary of Defense Charles E. Wilson learned about this back in 1953 when he ordered a holddown while taking the "new look" that the Republicans promised during the election.

•

It remains to be seen whether spending cuts will be imposed on construction from the top. Up to now, construction officials have been finding few places to cut, using the guidelines given them: no reduction in the basic military strength, no postponement of dates on which present programs are to be completed.

It may be a month or so before top Administration officials say whether the proposed economies go far enough.

Contract awards, however, are going ahead on schedule. There is no temporary slowdown or delay in the procurement process.

•

An updating of public construction spending for calendar 1955 has been figured privately by labor department experts.

Totals are down only slightly—from $12.3 billion to $12.1 billion.

Increases show for military construction, up $100 million from the earlier estimate of $1.15 billion; and hospitals, up $15 million from earlier figure of $310 million.

Decreases show for highways, down $200 million from earlier $4.2 billion; water projects, down $50 million from $650 million; and public industrial construction, mostly atomic energy, down $45 million from earlier $870 million.

•

Neither government nor industry offered answers to flood insurance problem during the meeting held by Housing Chief Albert Cole last week.

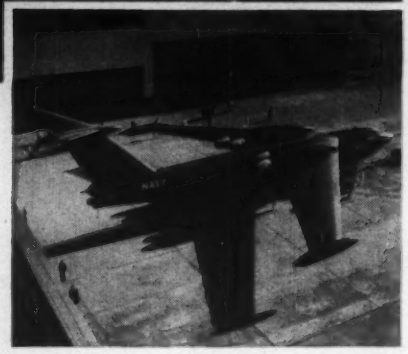
Administration wants program to take to Congress in January—some package that would insure flood sufferers such as those who lost hundreds of millions in New England and Pennsylvania.

Cole hoped that insurance officials would have suggestions for a combined government-industry program.

Industry officials said only government insurance is possible—that no private insurance policy can be written to cover such risks. They point to their 1952 study which found any such insurance "must be regarded as a subsidy or relief payment," and hence the responsibility of the government.

Burden now is on Cole and other officials to devise some remedy.

Deadline is submission of proposals to Budget Bureau by December.



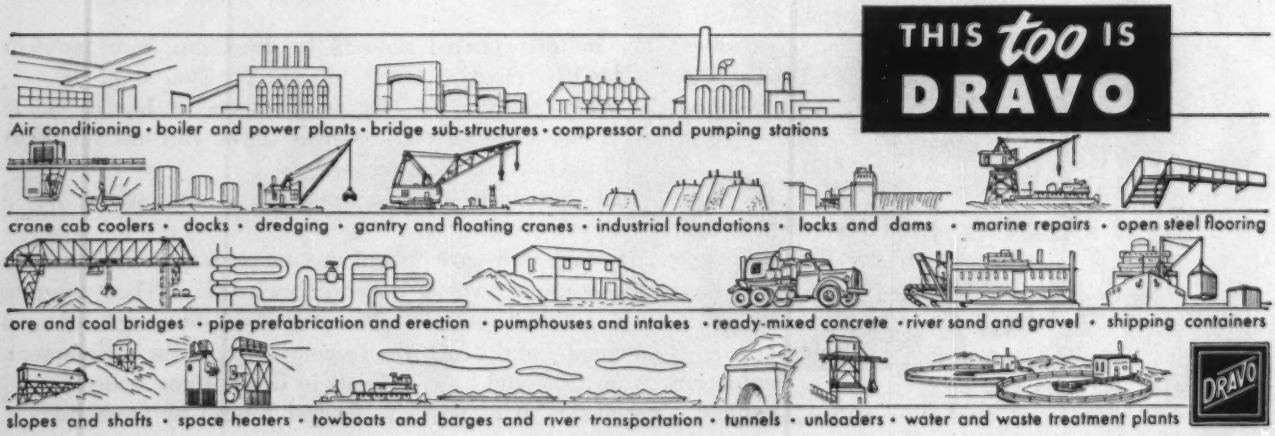
Skin specialists at work!

These Dravo men are forming a special wing skin for the nation's newest weapon of the sky—the Martin SeaMaster. It was a precise job, shaping 36-foot long aluminum plates to an accuracy tolerance of three-hundredths of an inch. Although these wing sections tapered from a half inch to a quarter inch thickness along their length, the delicate job was performed by Dravo's 1000-ton press brake without using special dies.

The world's first multi-jet attack seaplane, the XP6M-1 Martin SeaMaster is designed to cruise at 40,000 feet and operate at speeds in excess of 600 miles per hour. Planned for mine laying and photo missions, the SeaMaster can remain in flight for long periods, operate in high waves and engage in many combat tasks . . . conditions that require high structural strength.

In calling on Dravo's extensive fabricating and machine shop facilities, The Martin Company followed the example of many industrial firms and government agencies which have used these services. Typical projects have included floating caissons, process equipment, wind tunnel sections and carriages for atomic cannon.

For more than 60 years Dravo has been serving business and industry in many engineering fields, with customer satisfaction always an essential aim in every transaction. DRAVO CORPORATION, PITTSBURGH 25, PENNA.


THIS too IS DRAVO
Air conditioning • boiler and power plants • bridge sub-structures • compressor and pumping stations
crane cab coolers • docks • dredging • gantry and floating cranes • industrial foundations • locks and dams • marine repairs • open steel flooring
ore and coal bridges • pipe prefabrication and erection • pumphouses and intakes • ready-mixed concrete • river sand and gravel • shipping containers
slopes and shafts • space heaters • towboats and barges and river transportation • tunnels • unloaders • water and waste treatment plants
DRAVO

Bottlenecks are cleared, plan to buy buildings on the installment plan picks up speed as . . .

Lease-Purchase Projects Approach Bid Stage

The construction of lease-purchase buildings for the federal government will be under way by spring. Both the General Services Administration and the Post Office Department expect to make contract awards by February to private investor-builders under the new lease-purchase program for buying federal buildings on the installment plan.

These initial awards will start dirt flying on the first projects of a program that already has planning funds on tap for $500 million of new buildings, with a bigger volume to follow in the future. More than 50 projects, totaling $105 million, have been approved for construction. A dozen of these are in the final design stages.

Biggest and most active lease-purchase operation is that under the wing of the General Services Administration. The public buildings agency of GSA is pushing 26 approved projects with a total estimated cost of $91 million. Design contracts for four of these jobs are under way and nearing completion, three more will be awarded to architect-engineer firms within a matter of days, and 16 additional projects are scheduled to reach the drawing boards before the end of October.

All 23 of these projects go on sites the government already owns. Three others—in Richmond, Burlington and New York—will be delayed a little longer until sites are acquired.

For action next January, GSA is putting together a list of 50 to 60 additional projects to be submitted for required approval by the Budget Bureau and the Public Works Committees of the House and Senate.

• **Quick approval assured**—Approval procedure has been well worked out in the 14 months since Congress passed the lease-purchase law—the Public Buildings Contract Act of 1954. Projects are approved much more quickly than was possible in the first months of the program.

In the Post Office Department, the Bureau of Facilities is selecting A-E firms to draw up final plans and specifications for lease-purchase buildings at 18 locations, in addition to nine for which design contracts are already well advanced. These projects on the average are much smaller than the GSA jobs; total estimated cost of the 27 fully approved post office buildings is about $14 million.

Department officials expect their own post office program to keep pace with GSA's. That would mean advertising for investor-builder bids on the first projects before the end of the year and awarding construction contracts for the bulk of the present backlog within 12 months.

Barring delays not now foreseen, GSA and the Post Office should have close to $100 million of new lease-purchase buildings under contract by this time next year. Some minor bobbles might pop up when investor-builder bids are invited on the first projects. But that possibility is being pretty well eliminated by careful preplanning of contract terms and bidding procedures.

GSA has decided to invite both investor bids and builder bids at about the same time for each of its lease-purchase projects. Investors will compete on the basis of the interest rate that they would charge for money to finance the building. Competition among construction contractors will be based on the lump-sum price to build the structure.

Joint bids, combining offers on both interest rate and construction price, will be accepted. And such joint bidders may condition their bid upon government acceptance of both the financing and construction offers. In other words, GSA would have to take all or nothing.

GSA will evaluate all bids to determine the best deal for the government. Normally, the awards will be made to the bidders, separate or joint, who offer the lowest net cost to the government. But the problem can become complicated if bidders are asked to submit tenders on interest rates for varied lease-purchase periods of, say, 15 to 25 years, as seems likely. The question of what is best for the government's building program then cannot be decided simply on a basis of lowest net cost.

The problem of how long a term to write into the lease-purchase con-

. . . Bid stage

Lease-purchase speeds up

tracts—and the question of inviting tenders on terms of varied duration—will be taken up by a small advisory committee that Edmund F. Mansure, GSA Administrator, is appointing from the private investment field. This group will recommend to Mansure and PBS Commissioner Peter A. Strobel the kind of terms and other conditions that will make lease-purchase contracts attractive to investment houses, pension funds, insurance companies and similar institutions that are showing a lively interest in the program.

No unresolved questions remain to boggle the swift flow of design contracts to private firms. With minor suggestions that were quickly accepted, the American Institute of Architects gave prompt approval to the contract form that the Post Office proposed for use (ENR March 31, p. 23). For GSA projects, PBS employs the same standard contract that has long been accepted.

Both agencies negotiate design contracts with local firms in the areas surrounding project locations. All registered architects in a project area receive notices. Interested firms are asked to answer a standard, simple questionnaire that includes engineering personnel and associates. Usually, GSA waits about two weeks for these responses to come in. Then the agency begins conferences with selected applicants and negotiates a lump-sum contract.

Sometimes, the negotiators work out a joint-venture arrangement combining the resources of two firms—perhaps a small organization in the immediate locality and a larger firm in a nearby city.

• **Fees are limited**—There is a flat ceiling of 6% on GSA design contracts. Because GSA will handle construction supervision of all lease-purchase projects, the architectural-engineering fixed-dollar fees never reach the maximum percentage. They come closer to the maximum percentage on small projects than on large ones.

GSA is financing preparatory work and design contracts for the first 26 projects out of carryover funds that had been impounded during the defense emergency, several years ago. Congress, at the last session, voted $15 million in additional funds for site acquisition and about $5.5 million for design contracts on some $250 million worth of new buildings.

Among these projects will be the 50 or 60 up for approval next year. That list will include new buildings to be built in San Francisco, St. Louis, Pittsburgh, and possibly Cincinnati.

Also under consideration for next year are lease-purchase proposals for buildings to house three federal agencies—the Coast and Geodetic Survey, the Geological Survey, and the Weather Bureau. The buildings probably would be located in reservation areas on the periphery of Washington. General Services Administration already has planning funds for these projects.

Post Office plans for next year have not been revealed. The department is expected to submit lease-purchase projects in about the same number as GSA for approval by the Budget Bureau and Congress.

Kansas Turnpike

$100 million in work has been put under contract

More than $100 million worth of construction work on the Kansas Turnpike project has been put under contract since the first bid was opened last December.

The toll road will run 236 mi to link the state's three largest cities—Kansas City, Topeka and Wichita. All that remains to go to the contractors for bidding are nine bridges in scattered locations and 1¼ mi of grading and pavement on the eastern terminus in Kansas City. Plans have not been completed for the Kansas City work.

The latest progress report shows that 6% of the construction has been completed and 187 mi of right-of-way acquired. There are 235 mi of grading under contract, with 180 mi under construction; 247 out of the 256 bridges are under contract, with 182 of the structures started.

With the main hurdles cleared, the Kansas Turnpike Authority now can turn its attention to "clean-up" projects. Still to go under contract are projects for guard rails and other roadway protective devices, highway signs and traffic aids, maintenance and office equipment, and buildings for service areas.

The authority reports that although the work is about 5% behind schedule, the toll road can be completed so that traffic can flow on it by October 1956—the original target date.

Landscape seeding will be started about Sept. 15 on the first section of grading completed. This is six miles near Big Spring, east of Topeka. Unlike the Kansas Highway Department, which puts its landscaping out for bids, the Turnpike Authority will do its own seeding and landscape maintenance work.

Steel Expansion

Republic Steel to spend $130 million in two years, add capacity at 5 plants

In a major expansion program, Republic Steel will spend $130 million within the next two years at its plants in Cleveland, Warren, and Youngstown, Ohio; Chicago, Ill., and Gadsden, Ala. This is expected to boost Republic's capacity by 16%.

Plans include some new open hearth furnaces and electric furnaces. But most of the capacity will come from enlarging present plants. Some new finishing mills will be needed including those for production of hot and cold rolled sheets and strip; electrical sheets and strip; bars and wire.

Although the size of the program is impressive, it will represent comparatively little in the way of new construction. Most of the brick-and-mortar work will be for additions at present plants.

Construction loses out on another score. While the 16% increase in Republic's capacity will make more steel available to the automobile industry and manufacturers of consumer goods, it will not directly aid construction. The reason is that Republic does not produce structural steel. And, the firm has no plans at present to enter the field.

This new program is the second large-scale expansion launched by Republic since the end of World War II. The earlier expansion (ENR Sept. 20, 1951, p. 30) added 672,000 tons of capacity at a cost of $75 million.

The end is not yet in sight for steel industry expansion, according to the head of Republic Steel, Charles M. White.

White expects another major boost in Republic's capacity by 1965. While present facilities would permit economical additions for even the 1965 round, any increase in capacity after that date would require a completely new plant, White said.

Bridge Toll Reduced

For the second time this year the toll on Golden Gate Bridge is slated to be lowered. The new rate, effective Oct. 1, will be 25¢. Only last February it was dropped from 40¢ to 30¢.

The new fee, which will match the toll on San Francisco-Oakland Bay Bridge, is expected to trim $502,000 from yearly revenues. The reduction reportedly is possible because of increasing traffic (a new high of 59,530 tolls was set on Aug. 7) and the stable financial position of the Golden Gate Bridge and Highway District.

NUCLEAR POWER PLANT is being fitted into a 75-ft-deep hole just excavated near the Ohio River about 25 miles southwest of Pittsburgh.

Concreting Starts for Atomic Plant

Concrete is now being placed for the foundations of the first full-size nuclear power plant in the U. S.—a 60,000-kw pressurized water reactor at Shippingport, Pa., near Pittsburgh.

Since the plant will be partly underground, 250,000 cu yd of earth have been excavated to date. Steel sheetpiles 30 to 38 ft long have been driven around the 95,000 cu yd excavation for the building. Ground was broken for the project last September.

Already completed are the clearing and grading of the switchyard area, construction material and equipment storage area and installation of permanent gasoline tanks. A 60,000-gal water tank has been erected and two deep wells have been driven to provide water for 260 construction employes.

When completed, the building will extend 75 ft below grade and project about 50 ft above. The turbo-generator installation, however, will not be enclosed with roof or walls.

The primary system of the nuclear portion of the plant will be housed in four steel containers, which will be enclosed in concrete partly below grade. One container will be the nuclear reactor; the others will be two heat exchangers and an auxiliary storage vessel.

The nuclear reactor, which will contain the uranium fuel, will be a cylinder 9 ft in dia and 33 ft high. Faced on the inside with stainless steel, the 250-ton unit will have 9-in.-thick steel walls.

Pure water under 2,000-psi pressure will circulate from the reactor to the heat exchangers, where steam will be produced to drive the turbo-generator. That unit will have a maximum capability of 100,000 kw.

The nuclear reactor, turbo-generator and other vital components will be seated on a reinforced concrete mat 7 ft thick, which is now being constructed. Work is also under way on an intake canal and a discharge canal for condensing water. Steel erection is expected to start next month.

Duquesne Light Co., Pittsburgh, is building the turbo-generator portion and will operate the entire plant when it is completed in 1957 (ENR March 18, 1954, p. 28). Westinghouse Electric Corp. is building the reactor under a contract with the Atomic Energy Commission. Burns and Roe, Inc., is agent-constructor for Duquesne Light Co., with J. Rich Steers, Inc., and Hatzel & Buehler, Inc., as associates.

3-Story Parking Garage Planned for Waterfront

New York City plans to build a $1-million, three-story, fully-enclosed parking garage that would project partly over the East River at 23rd St. in Manhattan. Under present plans, Gulf Oil Corporation will build the facility with its own funds, give the title to the city and then lease it back. The oil company would amortize its investment through rental credits granted by the city under terms of a lease now being negotiated.

His Sewer Was a Scandal; Contractor Gets 8½ Years

Victor Clemente, the contractor convicted of scandalously shoddy sewer construction in Laurelton, Queens, N. Y., in 1952, has been sentenced to an 8½-year prison term.

Also sentenced to lesser terms were three borough employes responsible for field inspection of the $186,000 Clemente contract. Still to be sentenced in the long-drawn-out conspiracy and fraud case is Clemente's presently hospitalized son, Dominick.

Investigation showed pipes missing and broken in the completed line; it cost the city $391,000 to replace it.

Army Engineers to Ask Bids On Oahe Dam Excavation

The Omaha District Office of Army Engineers will call for bids before the end of the year on two major excavating jobs at Oahe Dam, near Pierre, S. D. In mid-October, bids will be asked for excavation of approximately 7,000,000 to 8,000,000 cu yds of unclassified material in the downstream half of the spillway channel.

An even bigger earthmoving job is scheduled to reach the bid stage early in December, when bids will be asked for removal of 20,000,000 to 25,000,000 cu yds from the powerhouse site on the left bank and the outlet works channel on the right bank. The contract will also include diversion, scheduled for 1958.

The December bid call will be for an earthmoving job nearly four times the size of the Gavins Point Dam job.

Congress recently appropriated $25 million for Oahe Dam.

Court Will Decide the Fate Of Two Cowlitz River Dams

A move to stop Tacoma, Wash., from constructing two hydroelectric dams on the Cowlitz River is scheduled to come up in Olympia Superior Court on Oct. 10.

An injunction against the $137-million project is sought by the Washington Fish and Game Departments on the grounds that a state law preserves the stream as a sanctuary.

State agencies are slated to argue on both sides of the question. The State Power Commission already has intervened on behalf of Tacoma. But Gov. Arthur B. Langlie has announced opposition to the dams.

Project plans call for one dam to be built at Mayfield, the other at Mossyrock. Tacoma already has awarded a contract for the Mayfield work (ENR June 23, p. 29) but construction is being delayed pending the outcome of the court fight.

WASHO Backs New Road Plan

Highway officials approve compromise calling for tax increases, bonds and better distribution of user taxes

L. L. Wise
Associate Editor

Expressions of shock at the failure of the 84th Congress to pass a badly needed expanded highway program were prevalent at the 34th annual conference of the Western Association of State Highway Officials held last week at Jackson Lake Lodge in Wyoming.

But the group made a constructive approach of its own to the highway financing problem. The association adopted in a resolution the essence of a compromise proposal presented by R. H. Baldock, Oregon's state highway engineer.

Briefly, the Baldock plan calls for a small federal tax increase, some deficit financing (probably bonds) and for expenditure of a greater proportion of the federal highway-user excise taxes on highways.

Most observers feel that Congress will enact an expanded highway program in 1956 with such a compromise financing plan.

In detail, the WASHO resolution calls for (1) A 15-year plan (in place of the previously suggested 10 year program) that will accomplish the needed work, with definite authorization for 5 years. (2) The federal government to provide construction funds for 90% of the $25 billion needed for the Interstate System, with funds appropriations for other federal-aid programs proportioned according to need. (3) Not less than $900 million a year appropriations for other federal-aid programs apportioned to the states according to the provisions of the 1954 Highway Act. (4) At least half of the $2.6 billion now collected in federal highway user excise taxes be spent on highway work. (5) An increase of one cent a gallon in federal motor-fuel taxes, with all new revenue from the increase expended on road construction, and (6) The balance of the funds required to be secured by deficit financing supported by motor vehicle taxes.

• **Need well known**—All speakers agreed that Congress and the American public are well aware of the need for increased federal programs, and that there remained only to work out a means of accomplishing it.

Wyoming's Governor Milward L. Simpson warned that unless Congress acts, the program might be taken over by investment bankers in the form of toll roads. A strong advocate of a free road system, Governor Simpson deplored the possible draining off of highway user funds in the form of high toll-road interest charges.

In both formal speeches and informal corridor discussions, many different reasons for the failure of enactment of the expanded road program were heard by the 537 delegates and guests representing the eleven far western states plus Texas, the territories of Hawaii and Alaska and the federal highway building agencies in those areas.

In his presidential address, WASHO President J. R. Bromley, Wyoming's state highway superintendent, placed the blame on lobbies and on highway officials. Many highway groups, he said, were for an overall program. But not enough emphasis was placed by such groups on the urgent desirability of passing some form of legislation.

Wyoming's freshman Congressman E. Keith Thompson criticized bond financing as mortgaging too far in the future facilities that may be outmoded before they are paid for. But he also explained that the alternate tax increase proposal was bad because it did not originate in the Ways and Means Committee—traditional source of tax measures. Consequently the proposed tax plan did not get thorough hearings and thorough consideration. Congressman Thompson predicted that Congress will move quickly on highway legislation in the next session with passage at that session a good possibility.

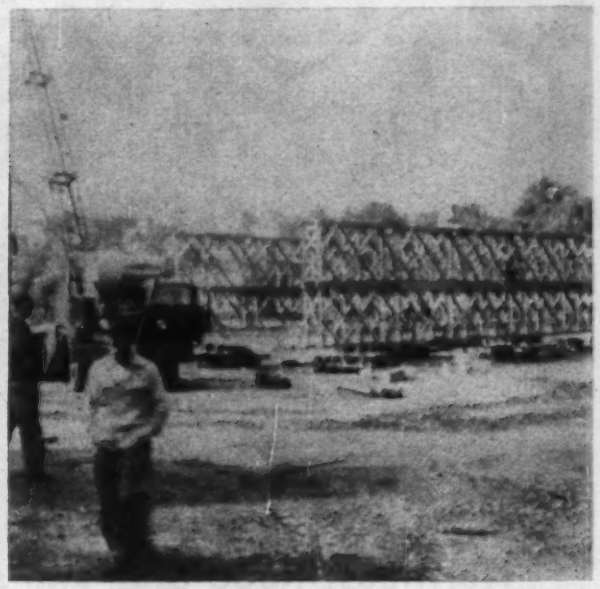
• **No test-road findings**—Biggest disappointment of the conference came from the fact that results of the WASHO test road were not released. Final report covering the 1951-1954 program carried out near Malad, Idaho, was expected at this session of WASHO, but the report has not yet been printed. And the advisory committee on the test has placed a ban on release of any of the findings until the full report is available. The report has been prepared and approved, and is expected to be available in October.

The L. I. Hewes Award, given annually to recognize outstanding accomplishments by a younger staff member of one of the highway departments, went to J. Al Head, assistant traffic engineer of Oregon, for analysis of complex urban highway problems and presentations of solutions in a manner easily understood by the public. The award is in memory of the long-time western chief of the Bureau of Public Roads, who contributed much to western highway progress. It includes a $500 prize given by Western Construction.

New officers of the group are: President, J. R. Bromley of Wyoming, Vice President D. G. Greer of Texas, Secretary-Treasurer H. B. Glaisyer of Oregon, and as members of the executive committee, E. V. Miller of Idaho, W. E. Willey of Arizona, and H. D. Mills of Nevada. The 1956 meeting of WASHO will be held in Phoenix, Arizona, the second week in April.

King-Size Head Tests Pressures

Built for testing pressures this is one of four 21 ft, 8½ in. dia heads—believed largest ever spun—used by New England Electric System at its new Littleton, N. H. development. Spun by Lukens Steel Co., the heads were butt-welded to the upper end of the 300 ft long penstocks, and test pressures up to 112 psi introduced. Afterwards the heads were cut up for scrap. The $45 million Littleton project, engineered by Ebasco Services, and under construction by Perini Co. of Boston and Morrison-Knudsen, Boise, will be one of two largest hydro stations in New England, producing 150,000 kw from Connecticut River water.



Winsted cleans up; Ansonia gets a bridge, but the . . .

Northeast Flood Area Has Few Bright Spots

A. J. Fox, Jr.
Associate Editor

Southern New England—struck nearly a month ago by a foot of rain in a day—is still in a state of shock.

Here and there in the broad belt of unbelievably severe destruction, from the New York State line to Rhode Island, there are evidences that the emergency stage is over, a rehabilitation stage has begun. But the overall picture is still one of emergency, with people homeless and jobless; business and industry crippled; transportation and traffic disrupted.

Where the rains poured and the floods flashed, there is a well-ordered clean-up job in progress. In the stream beds, in the streets, in the factories, the homes and in the sewers, the dirty job goes on.

In some spots the repair work seems to have been miraculously fast; you can drive over new permanent bridges, completed since the flood. In other places, pitiable clean-up attempts show so little progress you wonder if they are worth the effort.

Certain things seem sure: The affected area of New England will never be the same. The deep mark of this disaster is permanently fixed. Things will never be as they were in several of the worst-hit towns, before the rain started falling August 17.

And these things are almost as sure: The rebuilt towns may be better planned. The realigned riverbeds may be given the space they are due. The overall scheme for flood control may get some more serious thought locally. In other words, there should be some silver linings, though things still look plenty black.

• **Clean-up is orderly**—Flood clean-up operations were put quickly in the practiced hands of the Army Corps of Engineers. The Federal Civil Defense Administration is at the top management level insofar as federal aid to the states and municipalities is concerned, but the FCDA lost little time in asking the Corps to take over execution of many emergency jobs needing to be done. The Corps quickly mobilized for the job.

A team of 37 veteran flood-fighters, civilian employes in the Kansas City District, were flown in to set up an "area" office in Worcester, Mass., with Frank Dorr as area engineer and Col. R. N. Clock from St. Louis as commanding officer. This force was built up to over 60, about 12 being officers sent in from the Engineer School at Ft. Belvoir.

To Waterbury, Conn., to establish the second disaster area office, came a group from Omaha and others from points as far flung as Los Angeles and Jacksonville. Theodore Tritt from Omaha is top civilian engineer for the Waterbury area and Col. Anthony Fleming has been in command of 130 and more Corps of Engineer people, again including a commissioned officer contingent from Belvoir.

• **Stream beds have priority**—First order of business for the Corps is clearing of the debris-strewn river beds, reopening of the channels. Next they have taken on clearing of streets, when requests for help have come from the stricken towns. Water supplies and sewerage systems have been (and are still being) made operable. And in answer to a request they have even taken over the cleaning out of residential building basements in the Worcester disaster area.

All the Army work is done by contract. Last week in the Waterbury area a total of $4.5 million in many relatively small clean-up and repair contracts was in progress. Of 88 towns contacted by the Corps, 49 have asked and received reconstruction assistance. Contractor forces totaled 1,032 men, and there were 610 pieces of heavy equipment working.

The Worcester area had $1.2 million worth of contracts; 150 work orders in 35 towns and 28 jobs already completed. Contractor forces totaled 1,200. There were 219 pieces of heavy equipment at work.

• **Contractors are available**—There was no trouble finding contractors for jobs in either area. Some of the bigger firms sent men and equipment from the Massachusetts Turnpike on which construction naturally was slowed by the great rains. But many contracts went to even the smallest kind of contractor, "fellows with a couple of trucks or a bulldozer."

While finding contractors has posed no problem, there have been complicated legal angles. In some instances the Army is assuming contracts—some even verbal—made by towns and cities

STRICKEN INDUSTRIES either will rebuild fast or not at all.

. . . Northeast flood area still suffers

in the first days of the disaster. The confusion is unraveling, and everywhere there is a great feeling of team spirit.

• **Highway departments going full tilt**—Not all the emergency reconstruction is being left to the federal agencies. In both Massachusetts and Connecticut, the State Highway Departments have built and are still building temporary river crossings, including new Bailey bridging sent from the Army's depot in Marietta, Ohio.

Both highway departments are handling Bailey bridge construction with the Corps of Engineers just supplying advice. Only in Woonsocket, R. I., has the Corps been asked to handle building of a Bailey. State highway forces also are busy clearing silt and land slides; filling and repaving washouts; restoring shoulders and drainage ditches. Detours are many, but they are well marked and generally on hard-top secondary roads. Motorists in the area will be driving over Bailey bridging for a long time to come. Many minor bridges on major highways were lost.

Worst traffic troubles come in the towns, many of which were bottlenecks even before the catastrophe. Today they are the worst kind of traffic traps, with big construction vehicles fighting the necessary (also much unnecessary) traffic for passage through town.

• **Cities in a bad way**—Municipal engineering and construction forces are doing what they can, where they exist. But in the smaller hard-hit towns there may be but a part-time mayor or a selectman with responsibility—but no money or forces—for rebuilding. Even the larger cities quite understandably have been unable to cope with their present plight without state and federal help.

Waterbury, Conn., one of the largest and hardest hit places was without safe water supply for many days and is even now, with Corps of Engineer help, trying to make operable its badly damaged sewers and sewage treatment plant, two-year-old pride of the city.

• **Industry losing no time**—Certainly not the least effective in the fight for recovery are the industries of the several stricken New England towns. Here, the profit motive is strong and all-out measures are being taken. Industries that are rebuilding are doing it fast.

In the lower Naugatuck Valley, "brass center of the world," companies had last week set six to eight weeks for getting back in production. Hard as this seems to believe, it probably will be done. And where big industries dominating towns accomplish the seemingly impossible, they do much to hasten recovery of their entire communities.

Elsewhere there are industries so badly demolished they may never rebuild.

In Connecticut a special Governor's Emergency Business and Industry Committee has set up area headquarters just to work with the worst hit industries, to keep them from shutting down, moving out.

• **Tougher on the people**—Terrible as damage of this deluge was to public works, industrial plants and the railroads, the damage to small property owners can't be overlooked. A local man watching dozers work in Main Street, Winsted, Conn., put it this way: "It was the little fellow who took the licking this time."

Five-hundred are homeless in Putnam, Conn., where 200 houses were lost. (Sixty are on their way to provide temporary shelter.) Assistance of the Red Cross is very much in demand everywhere. Bodies are still being found and others may yet be found along the Naugatuck.

With the disaster still so fresh and the personal losses so great, it is hard to find much evidence of long-range reconstruction plans in the area. This is not to say that planning is not going on, but it is going on more at state level; the towns hit are too much concerned with the immediate problem of getting dollars to do what needs doing right now to be concerned too much with long-range planning.

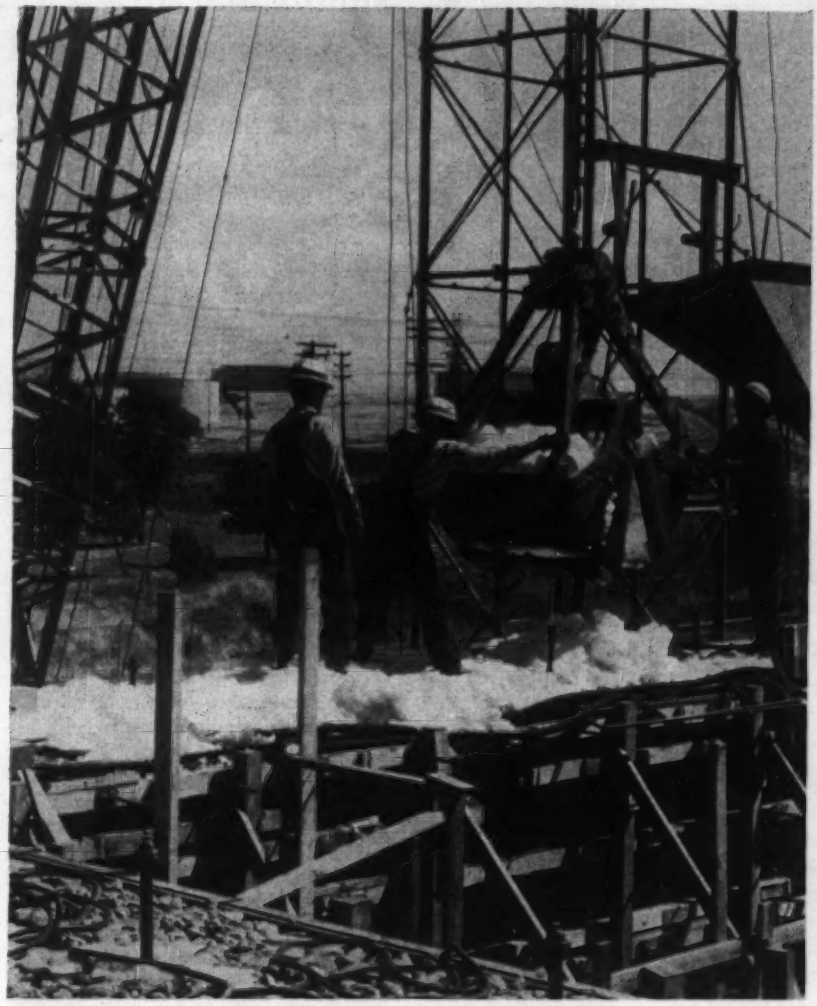
In Connecticut last week, only 14 of 45 communities that need it had accepted the state's offer to pay for services of top-flight planning advice (ENR Sept. 8, p. 24). Insofar as planning for future flood control goes, the only indication of activity last week came from Washington, where Chief of Army Engineers Lt. Gen. Samuel D. Sturgis, Jr., said it would take one to two years to develop a flood-control program to include places as far up the tributary streams as Winsted.

• **A different type of flood**—Such a plan would be interesting, for this was an unusual disaster. You get proper perspective on the August catastrophe from the Omaha and Kansas City engineers in the area. Familiar as they are with floods, this one was new to them.

In Worcester, Mass., Resident Engineer Dorr points out that the bulk of the damage done was not flood damage in the sense of inundation of lowlands. It was largely damage of rain running off in great volume and at great velocities. The distinction may be fine, but perhaps a better example is the damage done on hillsides in the open country where roads are washed away or covered with slides. This is not flood damage as the Midwesterners know it.

Resident Engineer Tritt in Waterbury (out of Omaha) further contrasts what happened to the normal Midwestern flood: In Omaha, they know when it's coming and about how high it will go; they do what they can to prepare, move out until it's over, then move in to pick up the pieces.

This northeastern calamity was entirely different. Ground that could



Concrete Aggregates Get an Icy Bath

Ice is dumped on coarse aggregates in forms for heavy concrete members of a 100-ft-high framework for two big refinery vessels at Tide Water Associated Oil Company refinery at Associated, Calif. Object: to cut down on shrinkage. The main slab of this framework, which is being built by the Prepakt method, is 8 ft thick and it is supported by eight columns 8 x 6 ft in cross-section, all heavily reinforced against lateral loads imposed by operating conditions and possible earthquakes. To minimize the effect of the heat of hydration, ice is applied to the coarse aggregates for 24 hours after being placed in the forms. Water is drained off through holes in bottom of forms, which are plugged before grout, cooled to 60 deg F, is pumped in.

soak up perhaps six inches of rain was already saturated when another six inches were poured on overnight. Water came up so fast that nobody was ready. The countless wrecks of autos to be seen in every stream are a measure of how unprepared the people were; just driving them a few hundred feet would in many cases have saved them.

Those working at recovery are not too much concerned with exactly what volumes of water came down the streams. They say, however, that the badly beaten Connecticut towns of Waterbury, Naugatuck, Seymour, Ansonia and Derby, on the Naugatuck River, saw three times the previous record volume of water.

Designing flood control for such unusual flows as this will be an interesting problem. And designing against such an unusual runoff as damaged the roads and drainage facilities even on the hillsides will also be of interest.

• **Reconstruction plans yet to come**—Although little has come out yet, there should begin a steady flow of firm plans for a reconstruction program that will involve the whole southern New England area.

It's a hard way to look at it, but the state had planned to widen that Main Street in Winsted anyway; now the job can't wait and it will be done sooner.

Worcester had been involved in taking lands for an expressway and had planned a needed major storm sewer for a long time. Now they will be done sooner.

Much improvement should come out of reconstruction if sound plans for the flood areas are made before too much unplanned rebuilding is done.

Second Bid Opening Finds Original Bidder Still Low

A second opening of bids for construction I of the key U. S.-Spanish base seaport at Rota on Sept. 7 brought four tenders—and the same low bidder.

Earlier bids (ENR Aug. 18, p. 24) had been rejected when a check showed a sizable error in the $12,768,472 low bid submitted by Corbetta Construction Co. and its Spanish associate, Construcciones Civiles Madrid; and when the next low was found to be $22 million, the work was readvertised.

Bids opened Sept. 7 in Spain showed the Corbetta-Construcciones Civiles joint venture the low bidder again—this time at a figure of $17,372,913.

Other American bidders included: Morrison-Knudson, Boise, Idaho, $21,250,759; Merritt-Chapman & Scott, New York, $21,640,722; Guy F. Atkinson Co., San Francisco, $30,888,293.

The work involves construction of docking facilities and considerable dredging.

Brown-Raymond-Walsh, joint venture prime contractors on the Spanish work, handled the bid opening for the Navy's Bureau of Yards and Docks.

Proposed Cape Fear Bridge To Be Studied by Engineers

The State of North Carolina has authorized an engineering study to be made of a proposed new $12-million bridge over the Cape Fear River at Wilmington.

It is estimated that the survey of the proposed bridge, approaches and connecting roads will cost from $15,000 to $20,000.

The present Cape Fear and North East Bridges at Wilmington—built in the early 1900's—are not designed to handle the heavy traffic now generated in the area.

The main problem involved in building the needed new bridge will be how to finance it. One possibility, suggested recently by State Highway Chairman A. H. Graham, is creation of a toll authority (ENR, Aug. 18, p. 28).

Hydro Power Plan

Utility combine asks FPC for permit to develop two sites on Snake River

Pacific Northwest Power Co. has asked the Federal Power Commission for permission to develop 1,446,000 kw of hydroelectric power on the middle Snake River between Idaho and Oregon. The project would be privately financed at a cost of $210 million.

Application for a license to build and operate dams and power plants at the Mountain Sheep and Pleasant Valley sites was filed by the company on behalf of its four member firms: Washington Water Power, Pacific Power & Light, Montana Power and Portland General Electric Companies.

Construction plans call for starts at both sites in March 1956, and delivery of the first power is scheduled for early 1959.

Pacific Northwest Power estimates that the dams and power plants will cost $143.7 million. Another $66.3 million will be needed for transmission lines to Northwest load centers.

The estimates are based on preliminary engineering studies conducted earlier this year by Bechtel Corp. and Ebasco Services, Inc. (ENR April 21, p. 46).

On April 8 of this year, the Federal Power Commission granted Pacific Northwest Power a preliminary permit for Snake River development. Oregon approved a preliminary permit on August 8, and Idaho had previously granted water-use rights.

• **Project described**—The PNP license application calls for a 255-ft-high concrete gravity-type dam at Mountain Sheep, 18 mi northeast of Imnaha, Ore., and one mile above the mouth of the Imnaha River. Top elevation of the reservoir would be 1,113 ft above sea level, providing a gross head of 163 ft. The reservoir would cover 1,700 acres, backing Snake water 20 mi upstream to Pleasant Valley.

The Mountain Sheep powerhouse, to be located at the toe of the dam, would have an initial installed capacity of 333,000 kw from three generating units. A fourth unit added later would raise capacity to 432,000 kw at full gate opening.

The Pleasant Valley project would include a 534-ft-high concrete arch-type dam at Pleasant Valley, 10 mi southwest of Whitebird, Ida., and two miles downstream from Pittsburgh Landing. Top elevation of the reservoir would be 1,490 ft above sea level, and its gross head for power production would be 377 ft. The dam will back water 34.3 mi to the tailwater of the Hells Canyon site.

The reservoir would cover 6,000 acres and have a storage capacity of 928,000 acre-ft with about 500,000 acre-ft of usable storage.

Pleasant Valley will have two powerhouses downstream from the dam, one on the Oregon side and the other on the Idaho side. Initial installed capacity would be 850,000 kw, from five units. A sixth would raise capacity to 1,014,000 kw. The plant's semi-outdoor hydro generators are rated at 144,000 kw, with a capacity of 170,000 kw at full gate opening.

Sewerage Project Nears Start As Surveyors Map First Stage

Survey crews have gone to work on the $7-million North Vancouver, B. C., portion of the first stage of a $65-million sewage installation program proposed for the 293-sq mi Greater Vancouver Area (ENR Oct. 15, 1953, p. 43). Reeve Grant Currie, of North Vancouver, estimated that completed plans, specifications and definite cost estimates will be ready in about a year.

Another $7-million part of the first stage has been recommended for Richmond by Canadian-British Engineering Consultants. The report, which the council has adopted in principle, proposes an overall scheme that would divide the municipality into several priority areas with sewers to be installed in those zones by various stages.

Virginia Toll Road Project Acquires a Higher Price Tag

New engineering reports indicate that the proposed Richmond-Petersburg turnpike will cost $69 million—$2.5 million more than was previously estimated.

The reports were submitted to Virginia Turnpike Authorities by Coverdale and Colpitts, which handled traffic revenue studies, and Parsons, Brinckerhoff, Hall & Macdonald, which designed the route.

A major reason for the increase over earlier estimates is that a 6-lane turnpike section in Richmond has been lengthened by 1.6 mi.

Actual cost of the road, including expenses for the average 200-ft right-of-way and pavement construction, will be $60.7 million.

The additional $8.3 million will be spent for engineering and architectural fees, maintenance and operating equipment, reimbursements to the Virginia Department of Highways, non-recurring administrative costs, and a contingency figure of $4.3 million.

Slum Clearance

Redevelopment progresses in 3 cities, gets added boost in South Carolina

This month new slum clearance projects passed preliminary hurdles in three more cities—Washington, D. C., Nashville and Sacramento.

Redevelopment also got a boost in South Carolina, where the State Supreme Court turned down a rehearing on Columbia's controversial substandard housing law. Last month the court handed down an opinion in which it upheld the ordinance as valid except for certain general discretionary powers in one section (ENR July 28, p. 17).

Here is how slum clearance projects have progressed in three cities:

• **Washington, D. C.**—The Urban Renewal Administration has approved an advance of $749,000 for use in planning elimination of slums in a 926-acre area near the center of the city. The federal agency also reserved capital grant funds amounting to $40 million to defray two-thirds of the cost of carrying out the work. The project is located in a predominantly-residential area of the northwest section of the city. This area now contains some 15,000 dwelling units, of which more than 10,000 are substandard.

• **Sacramento**—A final plan for the 15-block Capitol Mall redevelopment project has been approved by the Sacramento Redevelopment Agency and is awaiting approval of the City Council. As soon as the council passes the plan it will be forwarded to Washington, D. C., for approval and allocation of an $8.6-million loan and grant. The redevelopment agency already has retained Orrick, Dahlquist, Herrington & Sutcliffe of San Francisco to proceed with steps for the February sale of $1.5 million in revenue bonds to pay local costs of the slum clearance work.

• **Nashville**—The City Council has voted to issue $2.5 million in bonds for streets and other public facilities in the 72-acre Capitol Hill redevelopment area. The state and federal governments will bear the rest of the cost. Now that the bond question is settled the Nashville Housing Authority plans to advertise soon for bids on the $11-million project.

Up to June 1 the Housing and Home Finance Agency has earmarked more than $425 million in capital grant funds for 293 approved projects in 194 cities. (For background on slum clearance and urban redevelopment see ENR, July 21, p. 21.)

Harborite®

(DENSE OVERLAY ON SOLID-CORE BOAT PLYWOOD)

CONCRETE FORM MULTI-USE PANELS

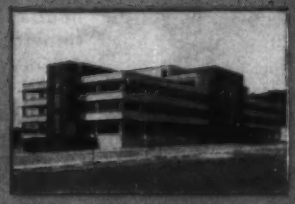
...lowest cost-per-foot-per-use of any concrete form material

...proved in every type of concrete construction

SCHOOL—Paxon Field School at Jacksonville, Florida. Built in 1954 by East Coast Construction Company. President C. Bernard reports, "Harborite panels were re-used twenty times on each side...expect another twenty uses. Edges held up exceptionally well under rough usage and the finished concrete had a smoother finish than that obtained with other form materials."

ARENA—Livestock arena at the State Fair Grounds in Raleigh, North Carolina has drawn international acclaim for beauty and design. Harborite concrete form panels were used in construction of this unique structure. Seats 5400 spectators. Erected in 1953 by William Muirhead Construction Company. Architects were Matthew Nowicki and William Henry Dietrick.

OFFICE BUILDING—New headquarters for the Tacoma City Light offices completed in 1954. Roy T. Earley Construction Company used Harborite concrete form panels for entire exterior surface of building...re-used on adjoining shop building. Contractor says "...more than normal number of re-uses, stripping was easy, finish was held to a minimum." Architect was Silas E. Nelson of Tacoma.



APARTMENT—An outstanding new landmark on Seattle's skyline is the 900 University Apartment house. Harborite concrete forms were used exclusively on the exterior of this 22-story building. Only one set of forms was built. Says contractor Louis E. Baldwin, "These forms have been used 22 times each...are in good enough shape to use on another building of similar size. We recommend Harborite to any contractor." Architect, Earl W. Morrison.

Eighteen years of use in every type or concrete construction has proved that Harborite produces better jobs at lower cost. Harborite's medium-high density overlay is manufactured specifically for concrete form work. Tough, smooth surface will produce glasslike concrete until literally worn away through use. Re-use factor is exceptionally high—50 being common, 2 to 3 times amount not unusual. Special solid core construction of SUPER-Harbord boat plywood adds extra strength and durability. There is no plywood made that matches this material in all 'round quality.

Lower-than-average initial cost combined with high re-usage means important dollar savings. This, with the superior appearance of the finished concrete job, adds up to features that make Harborite a must for cost-and-quality-conscious contractors.

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- ✓ Extremely tough, smooth overlay completely hides wood grain, knots and flaws; won't check or split; produces perfect concrete surfaces.
- ✓ Resin-impregnated overlay has great affinity for oils, sealers and lacquers.
- ✓ Will not bleed, run or discolor concrete.
- ✓ Solid core of best plywood made—SUPER-Harbord, the original boat plywood.
- ✓ Lower-than-average initial cost, high re-usage.
- ✓ Oiled and edge-sealed at factory.
- ✓ Available in oversize panels as well as standard 4' x 8' sizes, any thickness.

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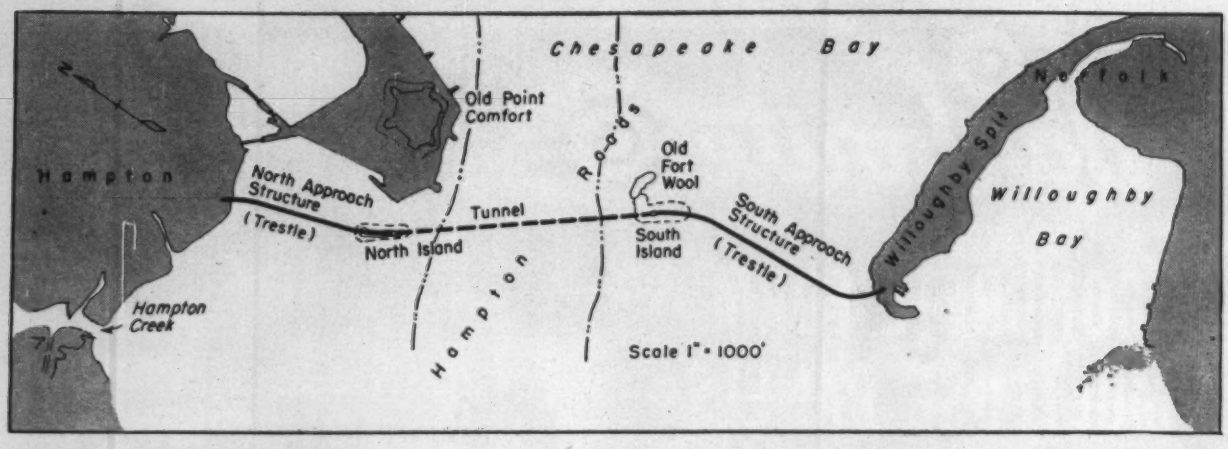


To Cross Hampton Roads—

7,000 ft of Tunnel + 10,000 ft of Approaches

From almost any viewpoint, Virginia's new bridge-tunnel project under historic Hampton Roads is a big and complex construction job. For instance:

Total length of the two approach sections, carried on trestles, will be more than 10,000 ft.; total length of the tunnel section will be 6,900 ft.; all of the concrete piles on which the trestle sections stand will be prestressed, all of the concrete beams that carry the roadway will be prestressed; two sizable sand islands created by dredging will have to be compacted by special methods; the working site stretches out over more than 3.5 miles of water and an additional couple of miles of land; cost will run over $58 million.

Construction so far (it started last December) has involved innovations like casting sixteen 50-foot prestressed concrete beams at one shot, and construction of a screed barge with built-in grade levels for screeding an underwater trench.

• **Reasons**—The bridge-tunnel is a part of efforts of the City of Norfolk and its neighbor communities to break loose from a geographical situation that has tied their development to ferries.

To the north—some 35 miles across Chesapeake Bay—lies the Delaware-Maryland-Virginia peninsula, connected by steamer-ferry; to the north and west are such communities as Newport News, Hampton, Old Point Comfort, all tied to Norfolk by ferries; to the south lies the great Dismal Swamp, to the east is the Ocean.

One ferry connection has already been eliminated, with the opening three years ago of a single-tube tunnel under the Elizabeth River connecting Norfolk and Portsmouth. But directly north lies Hampton Roads—long a rallying point for U.S. naval and merchant ships—which is in reality the junction of the Elizabeth, Nansemond and James Rivers with Chesapeake Bay.

Because of the major Naval installations in and around Norfolk, and the considerable commercial shipping, the mile-and-a-half-wide, 40 ft deep channel must be maintained.

Hence the decision of the Virginia highway department and its consultants, Parsons, Brinckerhoff, Hall & Macdonald of New York, to build trestle approaches to a long tunnel section that would be anchored to two man-made sand islands bordering the main channel. The bottom of the waterway—silt, then mostly good sharp sand with some clay layers—lent itself to the procedure of constructing the tunnel by use of prefabricated tube sections, sunk into place in a prepared underwater trench. The method is similar to that used for construction of the Norfolk-Portsmouth tunnel, and for several others in the United States—though the tunnel itself is by far the longest of its type ever built.

The whole connection, thus, will be a 3.5 mile route, snaking slightly from Willoughby Spit—the easternmost tip of Norfolk at that point—to Hampton.

• **Fast start**—First and only contract, to date, went to Merritt-Chapman & Scott of New York on its low bid of $19.5 million for the trestle approaches and the tunnel section, and things have been happening fast on the water and ashore ever since.

Within days of the contract award, R. I. Senn, MC&S project manager moved his specially-designed, air-conditioned railroad car headquarters onto the site of an abandoned coal pier at Lambert's point (about five sea miles from the job itself) and began dredging on December 1, 1954.

Not much time was spent—or is now spent—in the somewhat plush travelling office. For with Senn came his crew of key personnel and a roster of equipment that includes three 250 hp diesel tugs, 5 workboats, 4 derrick boats carrying 50-ton cranes, 1 derrick boat carrying a 100-ton crane, 2 locomotive cranes, 5 crawler tractors, a floating concrete batch plant (converted out of a standard 2-yd road paver); a stationary land based batch plant; several crawler cranes; a screed barge and assorted other water and land-based machines.

• **Casting yard**—While the seaborne equipment was moving into place, and hiring of some 240 local workmen proceeded, MC&S set up a casting yard for the hundreds of concrete piles, some of the pile caps, and later the bridge beams that would be required for the job.

Operated as a separate entity, this yard was set up to mass-produce the prestressed 24 x 24-in., 60 ft (average length) concrete piles in casting beds more than 300 ft long. With the Freysinnet Co. of New York as consulting engineers, Yard Manager A. D. Vick set to work to train local labor to exacting standards.

As set up, the casting bed is capable of handling four lines of the 24 x 24 in. prestressed piles—seven piles to each line—at a time.

Wires are threaded through heavy cast-steel anchors at one end of the bed, in the exact pattern for the pile. They are then pulled the full length of the bed (390 ft.) to duplicate blocks at the other end, and pulled taut by patented jacks. Tension on the $\frac{3}{8}$ in. steel strands (30 strands make up the full "cage" for each pile) was held at 150,000 psi until concrete had been

cast and had reached design strength.

Prefabricated forms that could be handled by a crawler crane were set over the wire "cages" for the full 390 ft, leaving spaces of roughly one foot between each pile, cut off from the next by temporary bulkheads. After concrete had reached strength, tension was released at the ends, the strands were cut between the piles, and the units removed to make way for the next cast.

A very dense concrete—reaching 7,000 lb at 28 days—was used to cast the 24 x 24 in. square-ended piles, which contain a 10 in. dia void in their centers.

A very similar procedure is now being used for casting the prestressed concrete beams, seven of which will form a support for the cast-in-place concrete roadway between pile bents. Because of the I section of the beams, however, the steel forms must be handled manually during stripping operations.

• **Casting trick**—Two other items will be cast in this yard. One will be caps for the 59 two-pile bents that will be constructed of patented, precast and prestressed 54-in. dia cylinder piles, with 5-in. wall thicknesses.

The other will be an item for which Senn's crew takes credit—a two-inch slab that is designed to eliminate the need for conventional wood forms for the bottom of the roadway slab, and thus eliminate the always difficult job of stripping forms after the road slab has set.

This thin slab will be 5 ft long by 4½ ft wide, 2 in. thick at the center and tapering to 1½ in. at the outer edges. In it will be cast a light-gage reinforcing mesh which will project above the slab at two points.

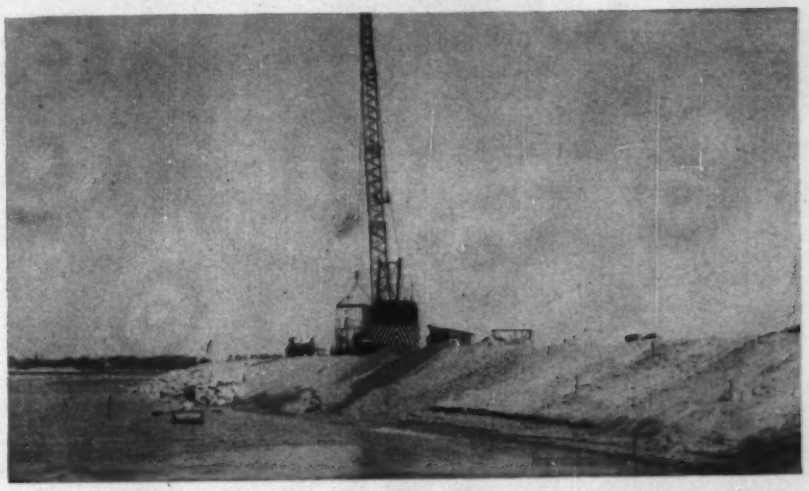
Then the slabs will be placed on top of the concrete beams spanning between pile bents, to become the bottom of the "form" for casting the roadway. The projections of the mesh will serve to tie the thin slabs to the roadway, and thus these "forms" will be cast into the finished roadway and left in place.

All products of the casting yard are loaded onto railway flatcars and transported to the Lamberts Point headquarters, where MC&S had rebuilt an old coal pier. The locomotive cranes transfer the members to barges for towing out to the job site.

• **Plenty of piles**—Reason for this separate, large-scale casting operation is clear enough from a glance at the bridge-tunnel designs.

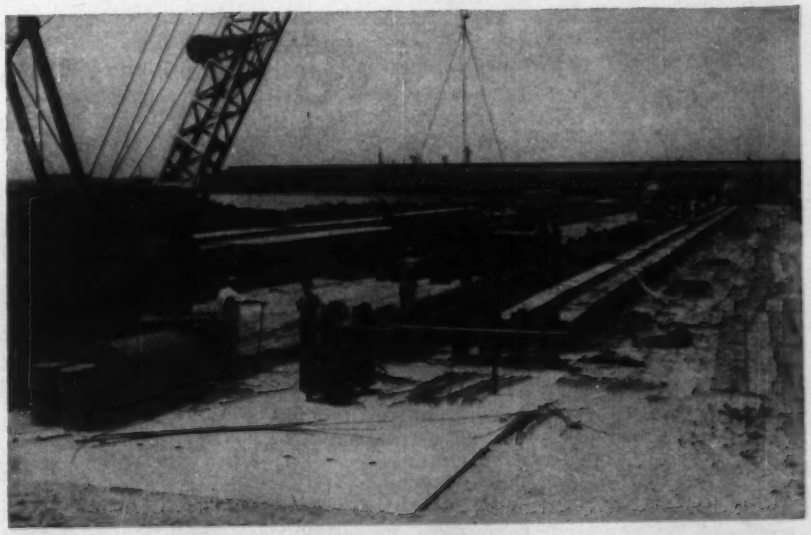
From the northern (Hampton) side of the project, the plans call for 64 bents using the 24 in. square piles, every third bent being composed of

All part of the Bridge-Tunnel job . . .



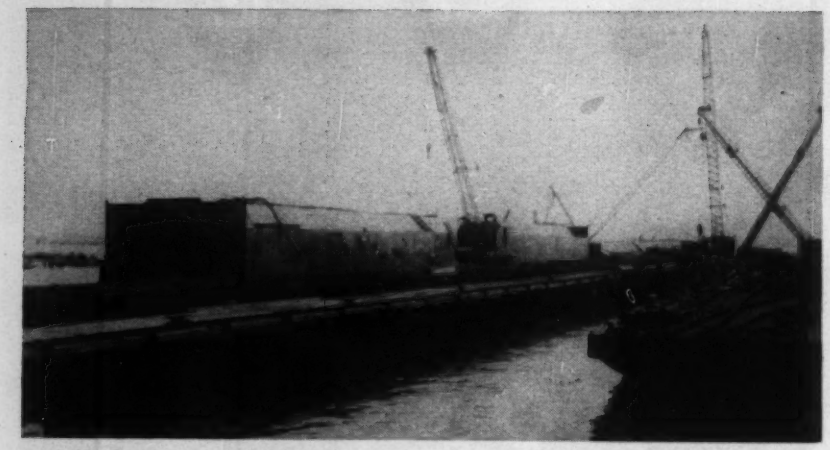
ISLANDS dredged from the estuary bottom will form anchors for the tunnel, termination points for the long trestle sections. Rock riprap may be further stabilized against possible hurricane damage.

LONG TRESTLE SECTIONS, here composed of 24-in. square prestressed concrete piles, will bring traffic to the islands, and the tunnel mouths.

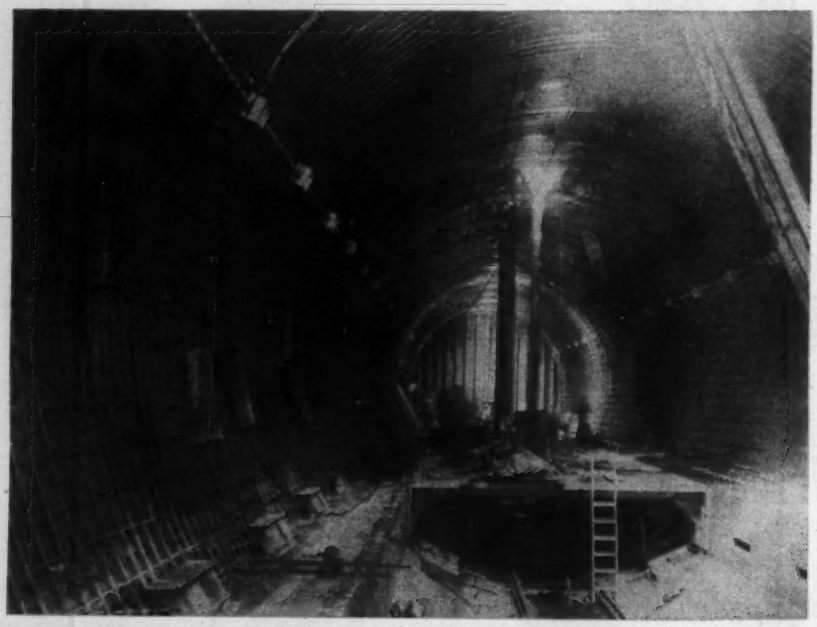


CASTING YARD can mass-produce prestressed members. Here fourteen 50-ft prestressed piles are ready for steam-curing, while crane sets forms for another row. Yard also casts 50-ft prestressed beams for spans between pile bents.

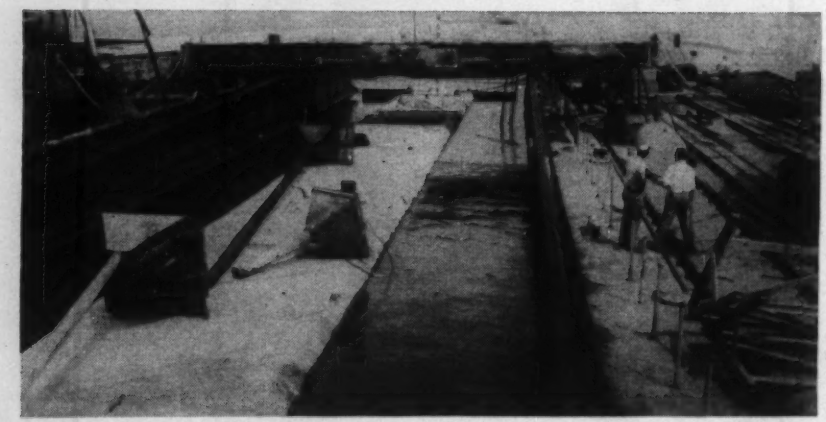
Tunnel, from surface to bottom . . .



THREE TUNNEL SECTIONS, each 300 ft long, line outfitting dock at Norfolk, to receive a good part of concrete casing and inside finish before moving to site.



INSIDE TUBE SECTION workmen attach reinforcing cage to wall with stud welds, cast interior concrete including main roadway slab.



NEARLY IN PLACE, tunnel section, showing only 15 in. freeboard, rests within screed barge for final positioning, after which added concrete will sink section. Barge has tracks on inner faces to guide screed to exact trench alignment.

six piles all on batter, the intervening bents being of four piles each, with the outer two on batter.

Then the route crosses 500 x 1,800 ft North Island, enters a cut-and-cover section, and dives through the tunnel 6,900 ft to South Island. From South Island toward Norfolk, the roadway is to be carried on 59 two-pile bents of the hollow cylinder type; then on 63 four- and six-pile bents like those in the first section, to the Norfolk shore.

All pile bents, regardless of composition, are 50 ft on centers.

• **Island building**—First major operation on the actual bridge-tunnel was dredging of the two sand islands. This operation went ahead simultaneously with the setting up of the casting yard, the reconstruction of the coal pier and other operations—and while a subcontract had been let (to Baldwin-Lima-Hamilton Corp., of Philadelphia) for fabrication of the tunnel sections.

Both islands are of considerable size, as indicated above, and both, on completion, will be faced with heavy rock riprap. Because the islands must support a length of roadway, the first sections of the tunnel, and ventilation buildings, the engineers decided that compaction achieved in dredging operations would be checked by taking undisturbed samples after completion of the island. Wherever relative density is found to be low under future structures, the patented Vibroflotation process will be used to insure a minimum relative density of 70%.

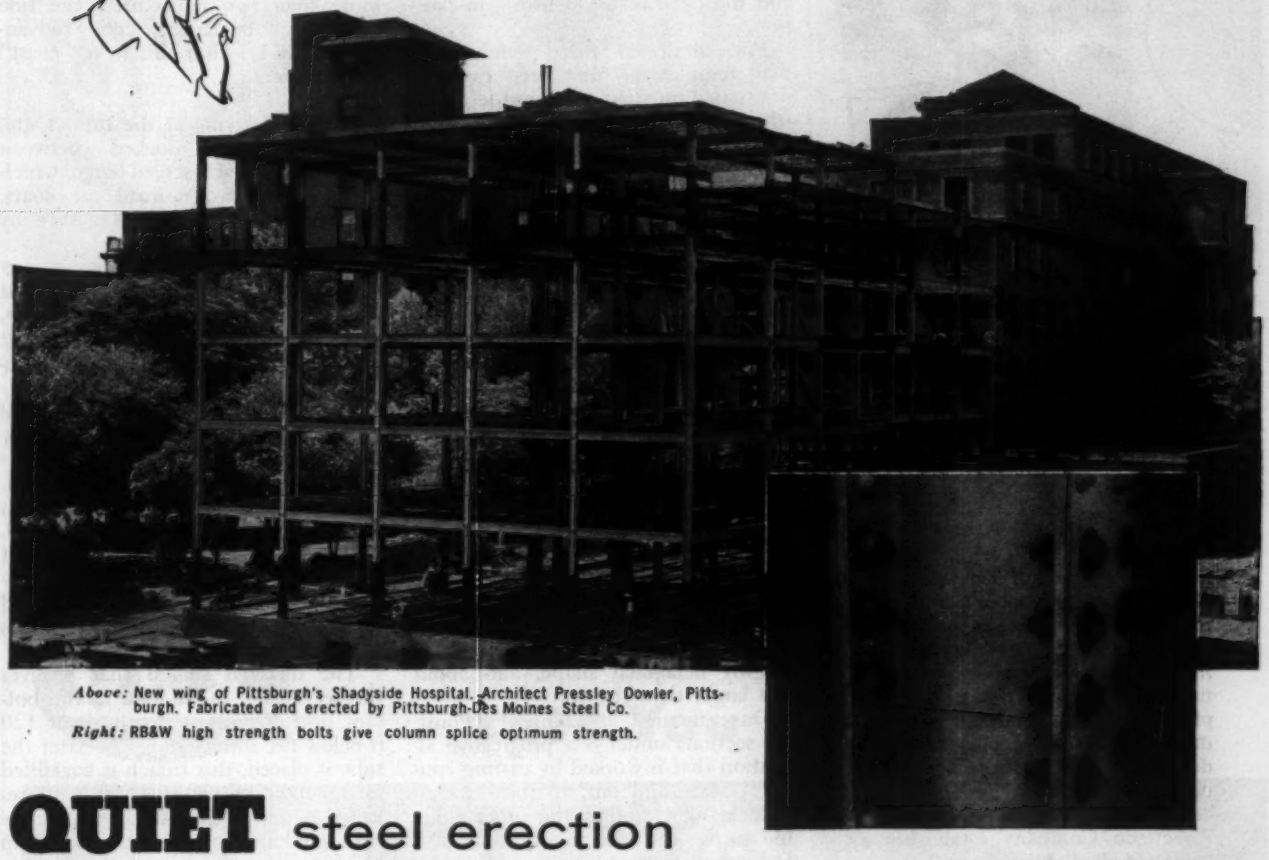
For the South Island alone, the contractor had to remove by dredging more than 1,000,000 cu yd of unsuitable material, replace it, and then add about 200,000 cu yd to bring the island safely above water. The substrata under North Island was sand, and no dredging was specified, but it required an additional fill of about 175,000 cu yd of sand. Riprapping is now being placed on North Island, South Island hasn't quite reached that stage as yet.

• **Piledriving**—Fabricated with square ends, and with reinforcing rods extending from their tops (to tie in with pile caps) driving the 24 in. piles brought forth further ingenuity.

Instead of the usual several-inches-thick wood cap normally placed between the hammer and the pile top to prevent damage, MC&S built up a 24-in. cube of oak blocks to serve as a cushion for the hammer, and threaded through this block a series of steel pipe that served as sleeves for the projecting reinforcing rods.

To insure additional control of the pile during serving, machinists fabricated a square "bell" to fit over the

Sh Sh Sh... hospital zone!



Above: New wing of Pittsburgh's Shadyside Hospital. Architect Pressley Dowler, Pittsburgh. Fabricated and erected by Pittsburgh-Des Moines Steel Co.

Right: RB&W high strength bolts give column splice optimum strength.

QUIET steel erection done with RB&W high strength BOLTS

PUT PATIENTS through the din of structural steel riveting? Unthinkable! So this new wing of Pittsburgh's Shadyside Hospital was field bolted with RB&W high strength bolts . . . and was all the better for it.

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See the RB&W catalog in Sweet's Architectural or Industrial Construction File (2cR/V) or send for "High-Strength Bolts" reprinted from Architectural Record.

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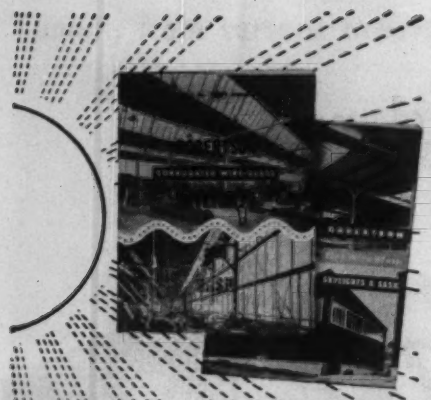

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The booklets shown here concerning corrugated and flat wire-glass skylights and sash cover a subject of increasing importance in modern industrial construction—*daylight engineering*—the calculated use of free natural light. You'll find a wealth of photographs showing successfully daylighted buildings, plus structural details and specifications for application to all types of roof and wall construction. You'll see how H. H. Robertson Company establishes a "planned daylighting curve" to accurately predict the foot-candle intensity to be gained from a given skylight or sash recommendation. Write for this free literature. It should be a part of every architectural and engineering file.

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end of the pile. This cast iron device has an opening of 26 in. at its bottom, and is then adjusted by means of detachable plates to taper to a width of 24½ in. at the top. Slung as a unit below the hammer, it keeps the pile and the cube of wood firmly in position.

Piles are driven after a prefabricated steel templet has first been carefully positioned on spud piles, and jets used (through the hollow centers) to start them.

The 54-in. circular concrete piles are also driven with a belled hammer, designed especially for this work by the Raymond Concrete Pile Co., patent holder. The big open tubes are manufactured at Raymond's yard in Louisiana, shipped by barge to the site.

• **Tunnel**—Four of the eventual 23 tunnel sections now stand at the Lambert's Point fitting out pier, in stages of completion that gave a visual demonstration of the procedures needed to fit them for final placement.

First stage is the steel tube itself, as it comes floating high on the water from the fabricating yard on the Delaware River. With bulkheads making it watertight, the tube is in fact a double shell—an inner circular section 37 ft in dia., and an outer shell of roughly octagonal shape, and about 2 ft larger than the core.

Once moored at Lambert's Point, the sections undergo a progressive alteration that is worked by casting concrete inside and out, to form a concrete blanket around the inner tube, and to put the base for the floor slab and other concrete inside, ready for finishing after the tunnel has been sunk into position.

Some concrete was cast in the bottom of the outer shell at the fabrication yard to give the tube stability in the water. First operation at the Norfolk fitting-out pier is to fill the remainder of this shell, at the same time that workmen enter the inner tube to prepare it for concreting. Here they use stud-welding to anchor the reinforcing cage for inner concrete, and then in stages cast the 1 ft 6 in. thick inner circle completely around the perimeter of the tube. Finally, working upward from the bottom, they cast the supports and then the 1 ft 2 in. slab for the tunnel's roadway (to be covered by a 4 in. wearing surface) and some of the curbing and sidewalls.

When this work is completed, the tunnel section has been sunk until it projects only 15 in. above water; working ports are closed, and the section is ready for towing several miles to the tunnel site.

Handling the clumsy, barely-floating tunnel sections is a tricky affair, requiring the services of three powerful harbor tugs and some of MC&S's own floating equipment. With tube sections now being towed out to position about every three weeks, the tugs plan to leave the outfitting dock no more than two hours after the tide has started to recede, taking advantage of the 1.3 knot current to "coast" to the site.

• **Placing**—Arriving at the tunnel site, the sections are "docked" between the two halves of a screed barge, which is in reality two railroad car floats, each 327 ft long, held together by steel crossbeams.

Main use of this barge is to prepare the bed of a dredged trench that will receive the tunnel sections. But, with its own pile-driven anchors, it also served as a means of exactly placing the tube sections.

Once in final position, additional concrete (from a 2 yd mixer on the screed barge) is placed on the outer shell, and the section sunk. As additional sections are placed, the tubes are connected to each other by collars at their ends, aligned by drift pins set by divers. When finally connected, slip forms are placed around the collars by divers, and the two sections concreted together.

The dredged trench that receives the sections is 40 ft wide at the bottom, and at greatest depth about 120 ft below the surface of roads. After the tube is placed, this trench is backfilled to a height of about 11 ft with selected material, then filled completely with random material. A rock riprap blanket, on a 2 on 5 slope, protects the final fill in certain areas.

To speed final grading of the trench before placement of the tunnel sections, the barge has two tracks welded to its inside faces to serve as runways for the heavy screed that is dragged the length of the barge. The upper track is on a predetermined 4% grade to establish a line for the sections of the tunnel running down from the islands towards the center; the lower track is on a ½ of 1% grade to establish the line for the center section of the tunnel.

• **Other details**—When completed, the tunnel will provide a runway with a 14 ft 1 in. clearance.

So far, preliminary plans have been made for a connecting road net in Norfolk and in Hampton, but the consultants—for whom Roger Stevenson is resident engineer—are preparing the final plan for an express highway. Contracts will be let for this work late this year. Approach sections of the bridge-tunnel are scheduled for completion late next year, the tunnel in mid-1957.

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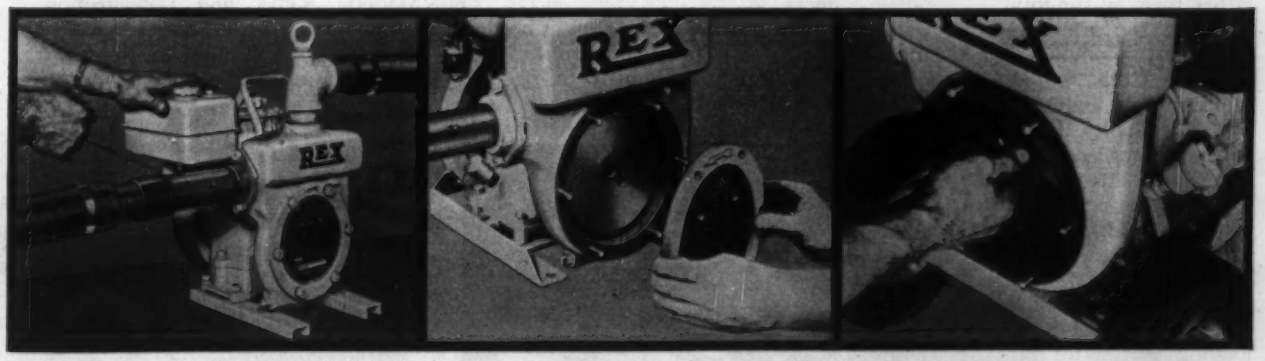

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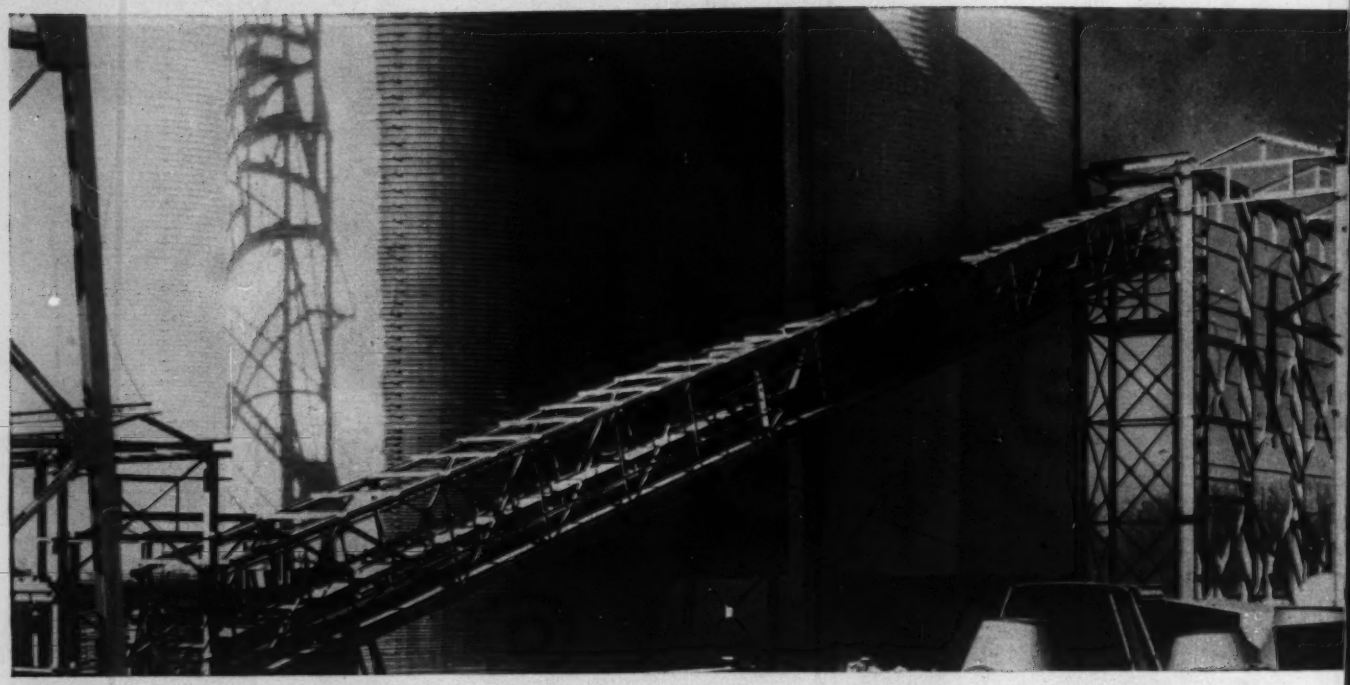


Louisiana storage silos were built with Ohio-cast concrete staves by contractor who found that a . . .

2,000-mi Barge Trip Means Cheaper Construction

The nearly 2,000 miles of waterways that connect Marietta, Ohio, and Lake Charles, La., were the main factor in making it cheaper to build industrial storage silos of precast units, rather than by slip-form.

It was the interconnecting waterways that prompted the Marietta Concrete Corp. to bid on a job of building eight industrial storage silos at Lake Charles, La. And the firm got the contract on a low bid of $105,000. This bettered by some $25,000 the estimated cost of constructing the 30-ft dia, 70-ft high silos of cast-in-place concrete by the slip-form method.

On September 1 of this year, Marietta was awarded a second contract totaling 59,400 for the construction of four additional silos 30 ft dia by 70 ft high. This will increase the total storage capacity of the installation by 50%.

The complete installation, which was placed in operation last January by the Lake Charles Harbor and Terminal District, cost somewhere between $250,000 and $300,000. This includes the eight industrial storage silos and cast-in-place concrete piles to support them; machinery housing and materials-handling equipment connecting the silos with dockage facilities on the Calcasieu River about 350 ft away.

The silos will be used chiefly for the storage and processing of phosphate rock employed in making low-cost fertilizer. This rock, which is mined in Florida, is barged to Lake Charles and unloaded into the silos by conveyor belts extending to the docks.

It is taken from the silos as needed, crushed and loaded into railroad gondola cars for shipment to fertilizer plants. A secondary usage for the silos will be for storing and processing barytic ore, used extensively in oil well drilling.

Since both the casting plant in Marietta, Ohio, and the erection site at Lake Charles, La., are served by connecting waterways, shipment by barge was a natural choice.

FROM MARIETTA, Ohio—Precast concrete staves are loaded into barges. Then . . .

OVER WATER—The barge used to transport the staves formed part of a tow down

• **A long haul** – This water route, nearly 2,000 miles in length, extends from Marietta down the Ohio River to its junction with the Mississippi River at Cairo, Ill.; then down the Mississippi to a junction with the Gulf Intracostal Waterway at New Orleans.

From that point, the barges moved west 250 water miles along the Waterway to Calcasieu Lake and up the Calcasieu River to Lake Charles.

• **Lightweight concrete** – It took 1,000 tons of concrete staves to erect the eight silos—all shipped in a single barge from casting plant to erection site. The staves were made of a lightweight concrete, which, according to the contractor, reduced transportation costs one-third, reduced dead weight of the silo installation, and provided higher insulation values than ordinary stone concrete.

The precast concrete staves are 10 in. wide by 2.5 ft long and 3⅜ in. thick. They contain hollows. And they were cast with tongue-and-groove vertical edges.

The lightweight concrete was required to have a minimum compressive strength of 5,000 psi at 28 days. It was made with a mixture of portland cement and an expanded-clay aggregate.

Starter staves, 24 in. long, were used alternately with standard staves in the first row, to provide a 6-in. stagger in the silos' horizontal joints.

• **Units erected from inside** – The eight silos, containing a total of 25,300 staves, were erected in 60 calender days by two five-man erection crews, under the supervision of one "working" foreman reporting to Robert D. Johnson, manager of Marietta's Nashville, Tenn., branch plant. The crews worked 8 to 10 hr per day, 6 days per week. Installation of the rock-crushing machinery and ore-conveying belts with their operating machinery followed closely.

The 45-lb staves were raised to a working platform by a small gasoline hoist operating inside each silo, and set in place by two workmen. Other workmen followed closely behind the stave-setters, placing the bands of galvanized steel hoops encircling the silos. The 60 days required to erect the silos, which are set on flat-slab foundations supported by concrete piles, included the placing of a continuous reinforced concrete slab roof.

• **Galvanized steel hoops**—The galvanized steel tie rods, or hoops, have a specified minimum tensile strength of 70,000 psi, and a yield point of 45,000 to 50,000 psi. They are ⅞ in. in diameter and vary in spacing from a minimum of 3 in. at the bottom to 9 in. at the top of the silos. Heavy galvanized iron lugs and ⅞-in. permanently fastened nuts, threaded to receive the tie rods, provide and maintain the required design stress.

• **Storage capacity** – The silos were constructed around a common tunnel located just above the slab foundation. The contents are withdrawn through discharge openings in the roof of this tunnel. Gross usable storage totals 350,400 cu ft. Taking into account the losses due to the angle of repose of the stored material, an approximate net flowable capacity of 282,400 cu ft is available.

In addition, live storage shelves of 50-ton capacity were constructed in two of the bins, discharging at 20 ft above the base. They are for direct loading of railroad cars on a track between the two rows of four silos each.

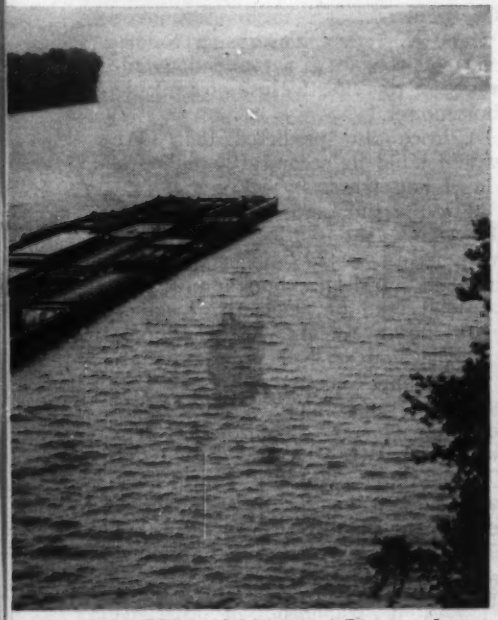
The exterior finish consisted of one brush coating of white cement mixed with sand. This coating also covered the hooks, lugs, nuts and threads. Over this, a coating of water-emulsion silicones was sprayed on.

The interior coating was applied in three steps: A slurry coat of neat cement; a scratch coat of cement and sand; and a sand-cement finish coat with a steel-troweled finish.

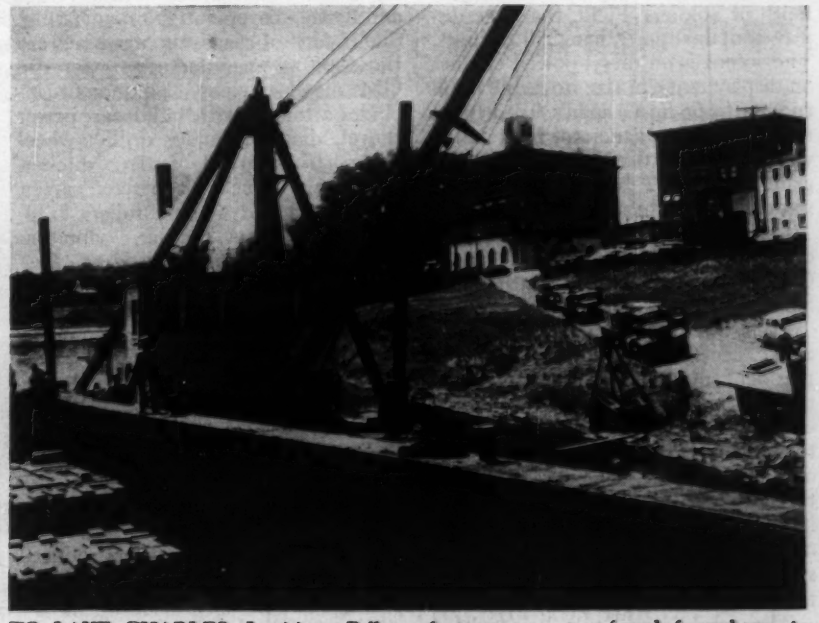
• **Municipal bond financing**—The entire storage, processing and materials-handling project is a self-sustaining municipal operation sponsored by the city of Lake Charles. Funds were raised through a bond issue.

The project was planned and designed by F. Schutts' Sons, Lake Charles, La., engineering consultants for the Port of Lake Charles. E. J. Christman is port director and John H. Groh is his assistant.

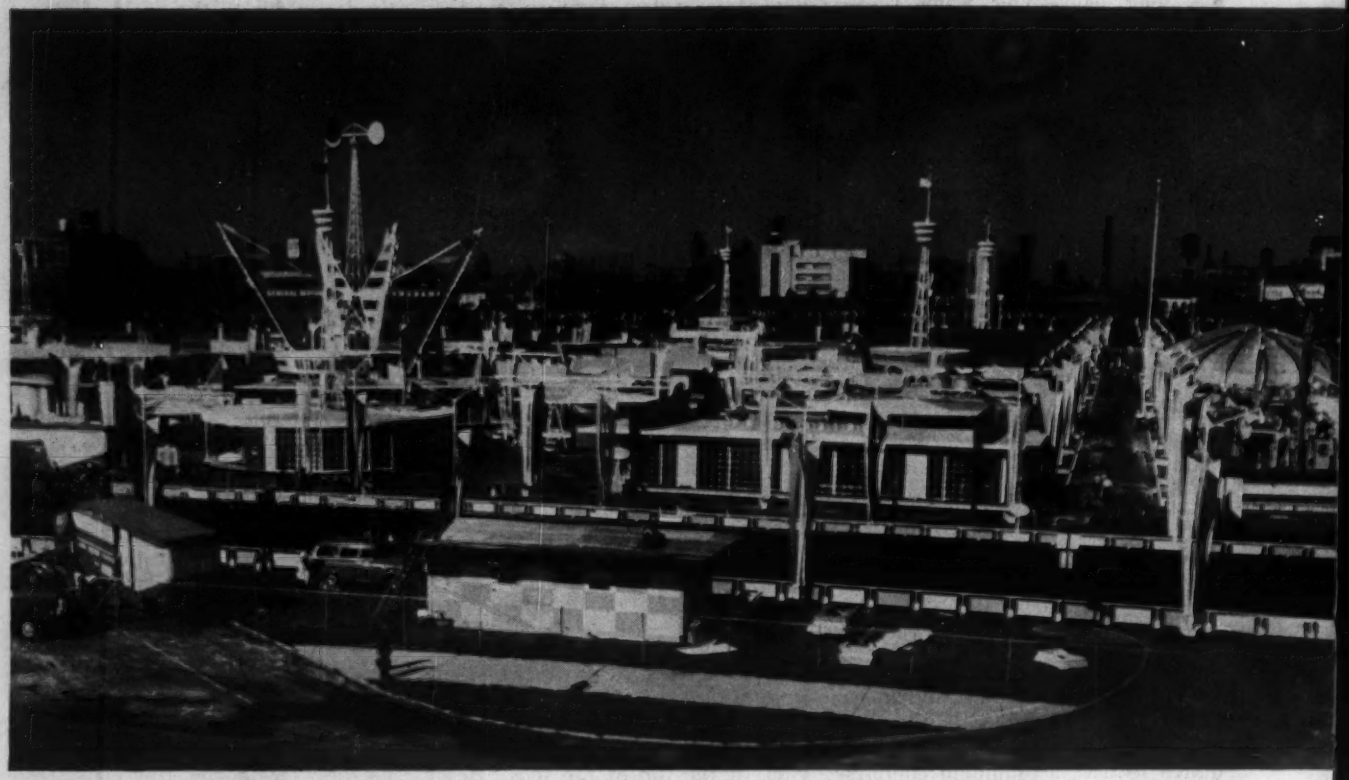
Other contractors on the project included: Raymond Concrete Pile Co. (installation of piling) and Hewitt-Robins Co. (conveyors); both of New York City; F. Miller & Sons, Inc. (foundation slab), Raymond Mill Co. (rock crushers), and W. B. Smiley & Co. (structural steel work); all of Lake Charles, La.



the Ohio and Mississippi Rivers and west along the Intracoastal Canal . . .



TO LAKE CHARLES, Louisiana—Pallets of staves were transferred from barge to flatbed trucks, completing their 2,000 mile trip by water.



General Motors stages a technological circus as . . .

Diesel Progress Is Glamorized at Powerama

With a mighty show of mechanical muscles, garnished with a lavish four-a-day outdoor stage production, the General Motors Corp. launched its Powerama Aug. 31 in Chicago, a glamorous, technological circus that will run through Sept. 25.

Occupying nearly 1,000,000 sq ft of area along Lake Shore Drive just south of Soldiers' Field, the huge display contains more than 250 exhibits. The accent is on diesel power; engines on display range in size from one small enough to fit into a man's hand (used to run a lighting generator for a model village) to a 16-cylinder, 3,300 hp giant that is 12 ft in diameter and stands 25 ft high.

One purpose of the Powerama is to celebrate the building this year of General Motors' 100-millionth diesel horsepower.

"But our chief aim in the Powerama," explained Harlow H. Curtice, president of General Motors, "is to unfold the seldom-heard but truly exciting story of how diesel and gas turbine engines—relative newcomers on the industrial scene—are providing the nation with new muscles to build its roads, cut its timber, drill its wells, clear and plow its fields, propel its ships and aircraft, drive its trains and turn the wheels of its machines."

The exhibits not only bring all of these activities to life, but run off the scale in both directions to include such items as guided missiles and a "Kitchen of Tomorrow."

• **Roadbuilding equipment featured**—Of particular interest to engineers and others in the construction industry is a complete roadbuilding exhibit, showing stage construction of both rigid and flexible pavement. Non-operating, due to lack of space, the machines are those of all manufacturers who use GM diesel engines. Equipment includes a tractor with bulldozer, power shovel, dragline, rotary drill, 6-wheel dump truck, road grader, ditcher, transit-mix truck, concrete paver, three-wheel and tandem rollers, bituminous paving finisher, vibration tamper and a front-end loader.

Curtice foresees a major expansion of diesel power in the roadbuilding field.

As a fitting accompaniment to all of this construction power are the exhibits of earthmoving equipment manufactured by GM's Euclid Division. These include a loader, 31 scrapers, bottom dumps, and tractor bulldozers, including the twin-engine TC-12 which packs 388 hp, and its companion, the recently-introduced C-6 with 194 hp (ENR Sept. 1, 1955, p. 67).

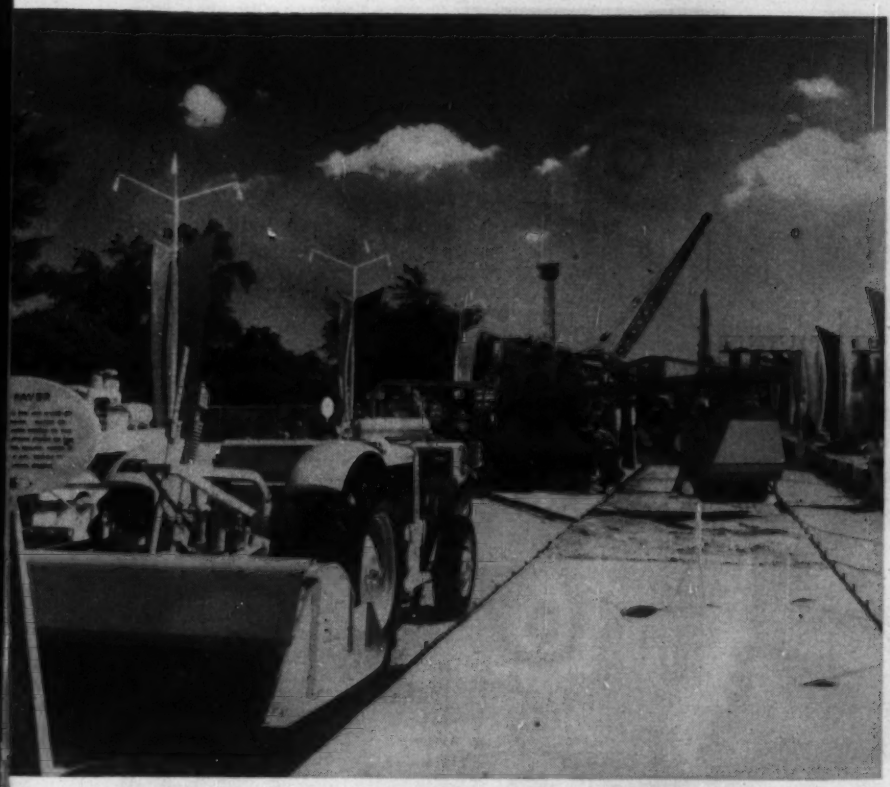
Also on display in the equipment show, and operating in connection with the stage shows are the big 50-ton Euclid end-dump trucks, one of which is filled with water to serve as a pool for a quintet of swimmers.

• **Industry expansion predicted**—At a press conference, the General Motors president predicted a great expansion in the road machinery industry. He commented that "The application of torque converter transmission to off-the-road vehicles is a tremendous advance in the effective use of available horsepower."

Curtice also predicted that GM would build its second 100-millionth diesel horsepower by 1965.

For the thousands flocking to see Powerama, the outdoor stage show with its cast of 225 singers, dancers, acrobats, musicians, horses, and even a small herd of elephants, together with heavy earthmoving machines, offers an hour of lively entertainment.

Powerama also shapes up as a fair-size construction job. Biggest single erection job was a grandstand of tubular steel with a seating capacity of 7,000. About 3,000 ft of railroad track was laid to handle the locomotive equipment on display. An estimated 7 mi of electric wiring was installed and 5 mi of water mains. And, an L-shaped dock, 410 ft long, was built along the lake shore. It took 155 box cars and 250 huge trucks to transport



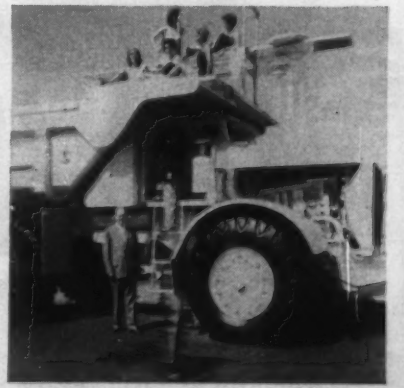
STEP-BY-STEP HIGHWAY CONSTRUCTION is shown at Powerama for both rigid roadway pavement (top picture) and flexible pavement. The roadbuilding display is an elaborate exhibit of the major types of diesel-powered machinery and equipment used in this type of construction.

exhibits and equipment to the site.

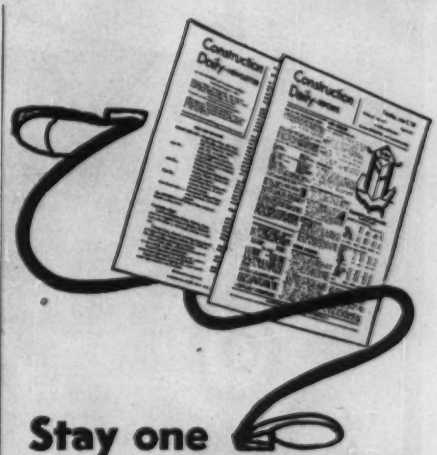
General Motors operates its own electric power for the Powerama. In addition, 8,000 gal of diesel fuel are required daily to power the action exhibits of the show. About 50 tons of rock are used each day to feed a portable rock crusher on display.

With Powerama pointing up the advances in the field of diesel power, the General Motors president, Harlow H. Curtice, predicts even more dramatic changes in the field in the near future.

"Many new developments in the diesel field are yet to come," Curtice said, "including substantial increases in horsepower per unit of weight, together with improvements in fuel economy."



EUCLID'S BIGGEST truck, a 50-ton end-dump truck, was filled with water to serve as an eye-catching pool for quintet of swimmers.



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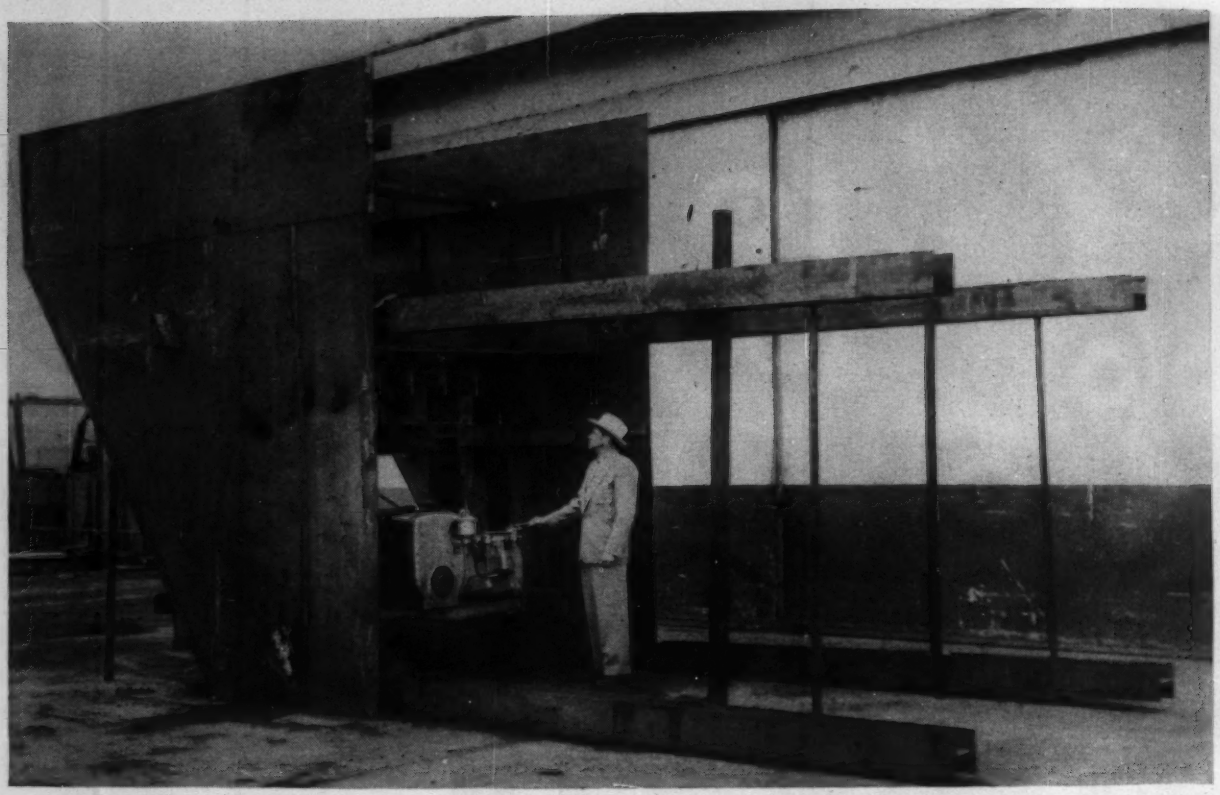


TRENCH SHIELD will brace storm drain excavation until timber bracing system can be placed. New features are hydraulic jack propulsion system and trailing wales for temporary sheeting support. Photo was taken in contractor's yard.

Self-Propelled Shield Braces Deep Trench

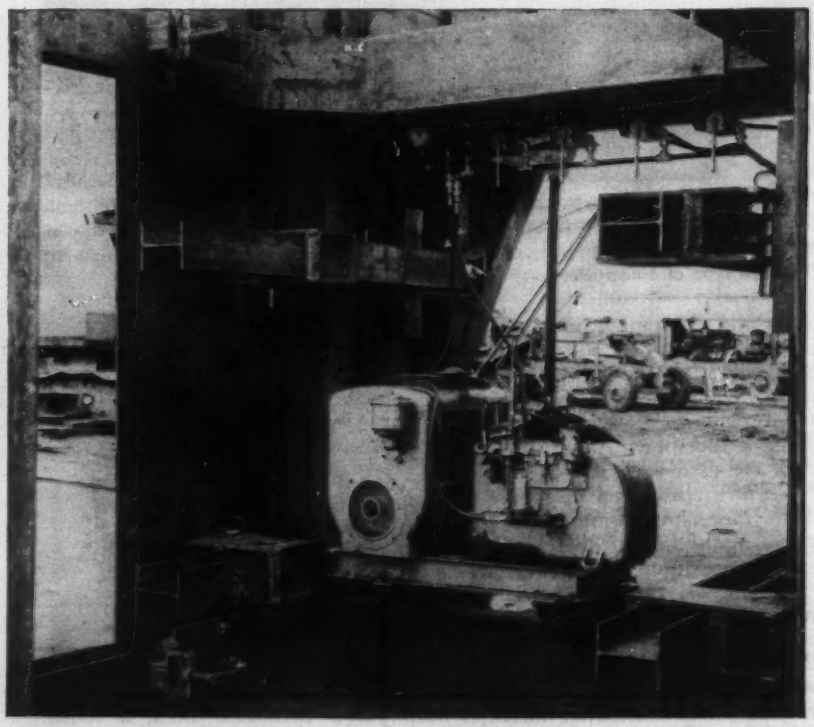
A self-propelled trench shield that supports excavation more than 15 ft deep for storm drain construction is in operation at Long Beach, Calif. The machine provides temporary support for the trench bank until a more normal system of sheeting, wales and struts can be installed.

Trench shields as such are not new, but self-propelled units are uncommon. And this one also has a system of trailing wales that, it is believed, has not heretofore been used in construction operations.

The machine is being used on the Seaside storm drain, a project of the Los Angeles County Flood Control District for which the joint venture of Stolte, Inc., and Morrison-Knudsen Co., Inc., hold a $1.2 million contract.

Design of the rig was by Maurice R. McClure, manager of Stolte's utility department, and it was built in Stolte's Oakland shops.

Key feature is the hydraulic jack propulsion system. Four 50-ton jacks are powered by a gasoline engine-driven, 10,000 psi hydraulic pump mounted on the moving shield.



MOTIVE POWER comes from gas engine-driven hydraulic pump that powers four 50-ton hydraulic jacks. Short H-beams conceal jacks that power vertical steel members behind the H-beams. Jacks will push against 3x12-in. trench sheeting.

• **Operation**—In operation the trench is excavated by a backhoe. As trench is dug, the hydraulic jacks push

against 3x12-in. sheeting already installed, inching the shield ahead. After at least 12 in. of travel, the jacks are retracted and a new pair of sheeting members are installed. The jacks have 30 in. travel so the shield can be pushed the width of two 3x12-in. sheets if the ground is good enough.

The jacks are so arranged that they can be individually controlled or gang-operated. In other words, full power can be exerted on any one jack or any combination of jacks in either direction.

The machine has plow-action devices mounted on its lower edge to dig a trench 3 in. wide and 8 in. deep. This trench provides a toe hold for the lower 8 in. of the wood sheets.

• **Wales**—The trailing wales are attached to the rear of the machine and are simply four 14-ft long H-beams. These are temporarily supported until some sheeting is installed and screw-type struts can be temporarily braced between the trailing wales. This permits installation of the more permanent timber wales and struts after the main body of the shield has passed. Permanent wales are 8x12 timbers with two sets used for good ground and three sets needed for poorer ground in deeper excavation.

The shield can be adjusted from a minimum width of 8 ft 2 in. to a maximum width of 11 ft 8 in. by means of telescopic box sections. This range of widths will provide a trench for laying pipe from 60 to 96 in. dia.

The main body of the shield is 10 ft high by 12 ft long at the longest point. It is equipped with adjustable self-supporting side boards that provide additional 3 ft of height. And even with the total 15 ft height, the machine at times will operate considerably below ground level. Maximum depth expected on the job is 22 ft.

A pair of adjustable shoes are installed at the lower leading edge of the shield to prevent rotation and to permit the operator to maintain proper ditch grades. These shoes carry the vertical load of the shield and its mechanical equipment.

The job is programmed for some 30 ft of excavation a day. Material being removed is of a sandy nature that requires careful and positive support. Pipe laying operations will follow the machine by from 30 to 100 ft. As the storm drain does not have to be subject to a water tightness test, the trench will be backfilled shortly after pipe laying with not more than 300 ft of trench open at any one time.

Sponsor on the joint venture is Stolte, Inc., and job superintendent is Albert E. Williams.

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American Tractor Offers New Models

With all the emphasis being placed on bigger, heavier and more powerful crawler tractors, the new but smaller workhorses are often overlooked. To prevent this, the American Tractor Corp. will be staging exhibitions—they call them Tractorama's—throughout the country to introduce a new and improved line of small crawlers.

These dirt moving shows will be similar to the one that is described in the Business & Finance section of this issue.

Largest of the new models to be introduced is called the Terratrac 600. This crawler, which will not be available until October, boasts a drawbar pull of 15,860 lb and is equipped with a four-speed transmission in connection with a torque converter. In 4th gear, the tractor is capable of speeds up to 5.68 mph forward and 6.2 mph in reverse.

Hydraulic clutches and constant mesh gears permit changing direction without loss of momentum. Steering is accomplished with hydraulically actuated disc clutches operated by either hand or foot control.

Power for the 600 is supplied by a Continental FA-162 which develops 57 belt hp at 2,250 rpm.

Equipment available for addition to the 600 includes a 1 cu yd shovel, a 72 x 31½-in. dozer, 88 x 31½-in. angledozer and a hydraulic backhoe with a choice of bucket sizes.

The company is also offering a Model 500 which is slightly smaller; however, like the 600, it has torque converter drive. Belt hp for the engine in this model is 47.2 and maximum drawbar pull is 11,200 lb.

The 500 has a standard three-speed forward, one-speed reverse transmission that provides a maximum forward speed of 4.88 mph with reversing done at 2.17 mph.

This unit, equipped with a ¾-yd hydraulically-operated shovel sells for less than $6,200 fob factory. But the manufacturer produces even smaller units which, naturally, are lower in price. These units, Models 200, 300 and 400, are not equipped with torque converters but can be equipped with dozer, backhoe or shovel.

According to the manufacturer, the shovel attachments, which range from ½ to 1 cu yd capacity, have been redesigned with bigger hydraulic cylinders for increased breakout power. They are also said to have improved roll-back action and lifting speeds. American Tractor Corp., Churubusco (Ft. Wayne), Ind.

Lightweight Range Poles Can Be Adjusted for Wear

The new Gurley range pole is formed of lightweight metal tubing with a steel point at one end that is said to provide excellent balance for plumbing.

The 8-ft poles are made in two sections; joining is by a slip-joint which permits wear to be taken up by spreading the split-plug connector. No special tools are needed; a hand axe or jackknife can be inserted in the slots to spread the metal, thus tightening the joint.

The pole's top section has a plug which can be removed, so that an extra 4-ft section can be added. W. & L. E. Gurley, Engineering Instrument Div., Troy, N. Y.

40-Tonner Is Largest Two-Axled Dump

Thought to be the largest two-axled dump ever built, the Kenworth 80 is a 40-ton, 24-yd (struck) unit designed for off-highway hauling duties. The vehicle measures 12 ft across the front hubs and is 14-ft high at the shield over the one-man cab. Chassis weight is 68,000 lb; GVW is rated at 150,000. A single diesel engine of 300 to 500 hp (depending on requirements) powers the unit through a full-floating, double reduction type 100,000-lb capacity drive axle. Front axle capacity is 50,000 lb. Kenworth Motor Truck Corp., Seattle.

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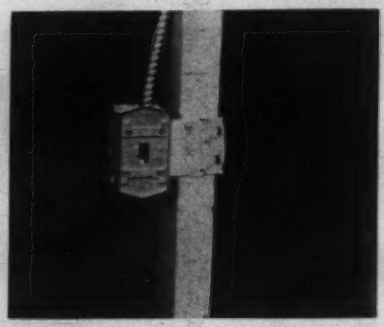
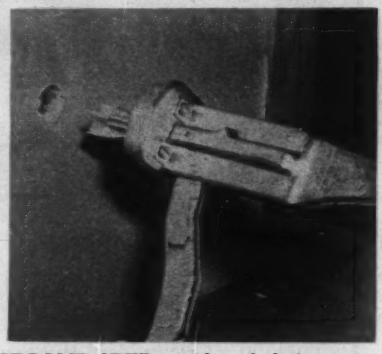
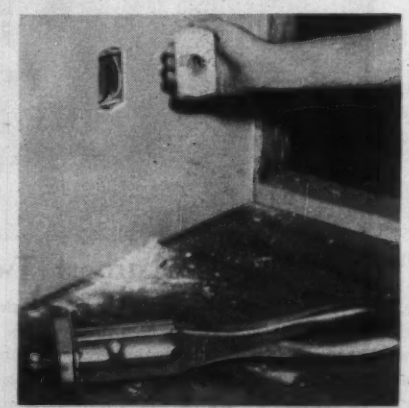


FIRST STEP is to snap cutter plate in position over the open end of outlet box.



SECOND STEP is to bore hole in approximate center of the installed outlet box.

THIRD STEP, pilot hole cutter is removed and locking cams inserted into hole.



CLEAN OPENING is made by squeezing handles together. Cut board knocks out.

Outlet Cutter

New tool simplifies cutting of outlet holes

Die-cut holes for single or multiple switchboxes can be punched in gypsum wallboard with a Stanley gypsum wallboard outlet cutter. The tool handles standard wallboard thicknesses of $\frac{3}{8}$, $\frac{1}{2}$, and $\frac{5}{8}$ in.

Without the tool, it is generally necessary to knock a hole in the wallboard with a hammer and then saw a rough hole to fit the outlet box. Frequently this method leads to a plaster patch job to make the wall presentable and paintable.

The new outlet cutter is said to do the job cleanly and neatly; it is claimed that it breaks no excess wallboard, does not split the back of the wallboard sheet, and doesn't damage the paper facing on either side.

To operate the tool, a cutter plate is snapped onto the switchboard before the wallboard is set in place. The approximate center of the switchboard is located after the wallboard is in place and a hole is drilled. After this, the locking cams at the front of the tool are inserted through the hole into the rectangular opening of the cutter which has been previously installed—the cutting plates align themselves. Squeezing the handles of the tool together presses the cutting plates together, and the result is a hole of the correct size with $\frac{1}{32}$ in. clearance all around.

A feature of the device is a winged pilot hole cutter, which eliminates the need for a brace and bit in getting to the outlet box behind the wallboard.

The cutter can be used for multiple switch boxes too, by the use of a three-sided cutting attachment in addition to the regular single-box four-sided attachment.

The outlet cutter comes equipped with one four-sided 2x3 in. cutter and one 2x3 in. three sided cutter. Additional cutters for 2x4 in. switch boxes and 4-in. circular cutters for octagonal ceiling outlet boxes are also available. The Stanley Works, New Britain, Conn.

New Mack Dumps Will Take 8-Yd Bodies, 46,000 lb GVW

For heavy dump duty—up to 8 yd struck capacity—Mack has introduced two new trucks, the B-60X, gasoline-powered and the B-61X, diesel-powered. Rated at 46,000 lb GVW, they are offered with a 158½ in. wheelbase, adapted to 10 or 11-ft dump bodies.

Standard tires are 11:00 x 24, 14-ply, single front and dual rear, on 8.5 rims, which are mounted on steel-spoked wheels.

For the gasoline-powered model, Mack's Thermodyne EN-464A engine, of 185 hp, is supplied with a choice of the standard five-speed, direct-in-fifth transmission, or a nine-speed Duplex overgeared wide-range type. The diesel-powered model uses the END-673 of 170 hp, with the same choice of transmission as offered on the gasoline model.

Rear axles in both models are dual reduction units, equipped with radius rods and torque arms. Service brakes are air-actuated. The hand brake is of the internal-expanding type, located on the tailshaft.

The cab and the entire front-end sheet metal assembly is a single, independent structure, supported from the frame by rubber supports in diamond formation.

The driver's seat is fully adjustable in all directions and is foam rubber, curled hair and coil spring cushioned.

Instruments are grouped on a pull-out panel for easy access and all fuses are grouped on a panel exposed when the glove-compartment door is opened. Complete door mechanisms, including glazing, window regulators and latches are assembled on removable panels. MACK TRUCKS, INC., LONG ISLAND CITY, N. Y.

Portable Vibrating Tamper Fits Into Automobile Trunk

A portable vibrating earth tamper has been developed which is small enough to be carried in the trunk of an ordinary passenger automobile.

After laboratory and field tests, the tamper was chosen by Visintine & Co. to tamp all backfill on the Sandusky St. bridge project in Columbus, Ohio. The keyseating properties of the tamper are said to have been approved by federal, county and state highway inspectors taking standard Proctor density tests at the site.

The tamper is self-propelled and travels 60 to 75 fpm. Power is supplied by a 2½ hp Wisconsin air cooled engine which operates 8 hr on 2 gal of gasoline.

A special shock absorber, mounted between the handle and tamping chassis, combines with soft, sponge rubber handle grips to minimize vibration travel to the operator.

12, 18 and 24-in. tamping shoes can be interchanged, and special form and curbing shoes are optional. JAY CORP., 168 HOSACK ST., COLUMBUS ST., COLUMBUS, OHIO.

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For further information send for Catalog E, Bulk Storage by Power Scraper and request the following field reports:

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FR-218 Handling Fertilizer Material
FR-221 Storing Sand and Gravel
FR-223 Unloading Ships and Barges
FR-224 Handling Ore with Drag Scrapers
FR-225 Robot Material Handling

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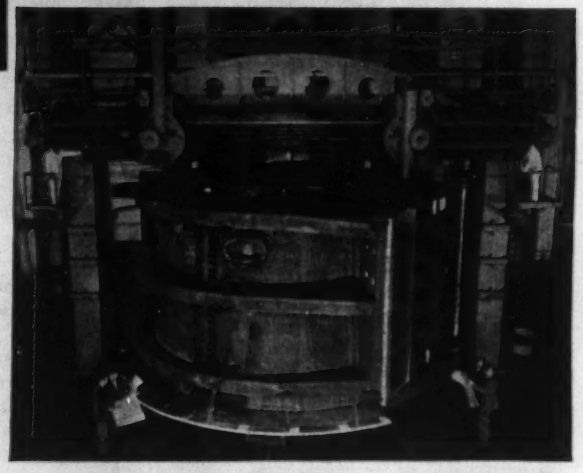
Rotor discs for mammoth 11-stage compressor were balanced and stacked for alignment in one of Newport News' five huge machine shops. Large engineering and technical staffs with a vast plant make Newport News an ideal source for large equipment . . . *standard or special in design.*



A 35-foot boring mill in Newport News' plant machining the 374,000-pound upstream housing for the giant axial flow compressor. The compressor is heart of an 8-foot supersonic wind tunnel at the Ames Aeronautical Laboratory of the National Advisory Committee for Aeronautics at Moffett Field, Calif.

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Sidney H. Bingham

Bingham Resigns

Head of New York transit system will leave Oct. 1

Sidney H. Bingham has submitted his resignation as general manager and executive director of the New York City Transit Authority. He plans to establish his own consulting engineering practice in New York, after his resignation becomes effective in February.

Bingham has been operating head of New York City's sprawling transportation system, which covers 831 miles and carries almost 8,000,000 passengers a day, since the city-owned facilities were taken over by the authority in 1953. He is now completing 39 years of service in municipal transportation—a career that began as a "level man" with the old Interborough Rapid Transit Company.

Thomas J. McLernon, manager of literage and stations in New York harbor for the Lehigh Valley Railroad, has been named to succeed Bingham as general manager.

After receiving his engineering degree from Columbia, Bingham worked in nearly every department of the old IRT and was technical assistant to the president at the time the system came under city operation in 1940. He was assigned to a number of high-level administrative positions following World War I, and in 1947 became the first transportation commissioner to be appointed from the ranks. Three years later, he was named chairman of the Board of Transportation and became its executive director in 1954, a post he has continued to hold along with that of general manager.

Bingham served overseas during both World Wars and was awarded the Croix de Guerre for his services as a railway engineer in France during the first war. He was commissioned as a colonel in the Transportation Corps in World War II and was assigned to military railway operations in England, Africa and Europe. During this period, he developed designs for LST-2's specially constructed for carrying fully-loaded freight cars to the beachheads, and designed a "breathing bridge" in order to facilitate unloadings in areas where 28-ft tides were normal.

While engaged in the operation and administration of the largest transit system in the U. S., Bingham has developed an international reputation as a transportation consultant. He has assisted nearly a dozen American cities in the study and planning of traffic improvements and has worked on the transportation problems of Rome, Lisbon, Buenos Aires, Santiago, Montreal, Milan, Calcutta, Adelaide and Istanbul. In recognition of his services in planning a subway for Stockholm, he was knighted by the King of Sweden in 1952.

In leaving the authority, Bingham will leave behind a dream not yet fulfilled—application of the conveyor belt principle to New York's underground transportation system. He has worked on the development of the principle for several years and has recommended its use to replace the 39-year-old shuttle between Times Square and Grand Central. Still before the Board of Estimate, action on the recommendation has been postponed until next month.

Retired Naval Officer Named Harbor Engineer

The Los Angeles Harbor Department, Los Angeles, Calif., has appointed Rear Admiral Edward V. Dockweiler, U.S.N. (Ret.), as chief harbor engineer.

Since his naval retirement in 1949, Dockweiler has been associated with several private firms, including The Fluor Corporation, Ltd., for which he served as project engineer in Saudi Arabia and Peru.

A native of Los Angeles, he graduated from the U. S. Naval Academy and later received a master of science degree in naval construction from Massachusetts Institute of Technology.

Principal duties during Adm. Dockweiler's naval career, both here and overseas, related to the design, construction and repair of vessels and shipyard facilities.

Former Highway Engineer Joins Trade Association

Henry Aaron, former chief of the Airports Technical Branch, Civil Aeronautics Administration, has been named highway and airport engineer of the Wire Reinforcement Institute, Washington, D. C.

As a staff member of the institute, Aaron will work closely with highway and airport engineers throughout the country to develop standards and specifications for reinforcement of portland cement concrete pavement with steel and welded wire fabric. His appointment marks the beginning of an intensified effort on the part of the institute to develop higher standards for reinforced concrete pavement design.

A civil engineering graduate of George Washington University, Aaron began his career with the Bureau of Public Roads in 1924 and for nearly 20 years worked on soil, drainage and pavement problems. For two years during this period, he was loaned to the Argentina Federal Highway Department as technical advisor.

Aaron served in World War II as a public works officer with the U. S. Navy and afterwards returned to BPR. He later joined the CAA, where he has been responsible for development of technical standards governing design and construction of airport pavements, drainage and lighting systems, and landscaping and turfing.

(*Men and Jobs continued on page 48*)

Henry Aaron

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Robert E. Holberg

Heads Up Construction Firm With Headquarters in Miami

The Caribbean Construction Corporation, recently formed Florida engineering and construction firm, has set up its principal office in Miami.

Operating in the southeast, Central and South America and the Caribbean area, the company is headed up by Robert E. Holberg, whose previous associations include Ford, Bacon and Davis, The Austin Company, Kellogg Construction Company and Tecon Corp. For several years, Holberg had his own construction firm, known as Robert E. Holberg & Co., in Los Angeles.

J. R. Reynolds, former Latin American representative for Galion Iron Works & Mfg. Co., has been named chief engineer for the company's Latin American operations. He began his construction career with the Ohio Department of Highways in 1930 and has engaged in highway engineering and construction work in Texas, Brazil and Columbia. From 1945 to 1952, he owned and operated the J. R. Reynolds Asphalt and Paving Co., in Pennsylvania and Arizona.

New Chief Engineer Named For New York Public Works

Eugene F. Gibbons of Valley Stream, Long Island, has been appointed chief engineer of the New York State Department of Public Works. He succeeds George L. Nickerson, who returned yesterday to his former position as district engineer of District No. 1 with headquarters in Albany.

At the time of his appointment, the new chief engineer was associated with J. Rich Steers, Inc., New York contractors.

A 1936 graduate of Manhattan College School of Engineering, Gibbons obtained his masters degree in civil engineering from Polytechnic Institute of Brooklyn. Most of his nineteen years in the construction field have been spent in the New York area where he began his career as field and office engineer for the Carleton Company, working on various sections of the city subway system.

He later became field engineer and superintendent of expansion projects at the Brooklyn Navy Yard, project engineer on the Brooklyn Battery Tunnel, and general superintendent for Lenart Constructors, Inc., on part of the Brooklyn-Queens Expressway. In 1952, he was named chief engineer for Steers-Grove, Inc., contracting engineers, in charge of naval base expansion in French Morocco.

Highway Engineer Joins National Slag Association

D. W. Lewis, formerly research engineer, Indiana Joint Highway Research Project, and associate professor of highway engineering at Purdue University, has joined the National Slag Association as chief engineer.

Active for many years in the field of aggregate and concrete research, he will serve the association principally on matters of an engineering nature involving slag as a mineral aggregate and its end uses.

D. W. Lewis

Men and Jobs Briefs . . .

• **Corps of Engineers—Col. Myron E. Page,** formerly on the school staff at Fort Belvoir, Va., is new district engineer in Walla Walla, Wash., succeeding **Col. Alexander H. Miller,** who resigned from the Corps to join Potlatch Forest Industries . . . **Major Peter Somers,** recently stationed in Korea as executive officer of the 45th Engineer Maintenance and Supply Corps, is appointed comptroller at the Research and Development Laboratories, Fort Belvoir, Va.

• **Careers—Frank C. Witkoski,** member of the University of Scranton faculty, is named director of research and testing for the Pennsylvania Department of Highways . . . **Ralph Davis** takes over today as executive director of the Florida State Road Department—a new post created by the 1955 legislature. . . **Earl L. Mosely** is appointed project engineer for the Denver, Colo., Water Board.

• **Business**—The Long Construction Co., Kansas City, Mo., names **William R. Branit,** who's been with the company since 1942, as chief engineer . . . **S. D. Ford** is promoted to chief engineer by Sandwell & Co., Ltd., British Columbia consulting engineers . . . **Jack L. Staunton,** chief sanitary, hydraulic and petroleum engineer, becomes an associate member of Seelye Stevenson Value & Knecht, New York consulting engineers.

Ben Maccabee and Engineering Service Bureau, Chicago, Ill., announce their association with **Samuel Moreell, Jr.,** who will have charge of overall planning and design of special engineering projects, investigations and reports . . . **Andrew Deane,** who has been associated with U. S. Steel since 1949, is elected vice president of United States Steel Homes, Inc., housing subsidiary of the U. S. Steel Corp.

John G. Bane opens an office as civil engineer at Winston-Salem, N. C. For the last two years, he's had his engineering office in Asheboro . . . **G. E. Plant** is appointed manager of Dominion Engineering Co. Ltd.'s new western division with headquarters in Vancouver, B. C.

• **Retirements—George R. Putnam,** as Utah vice president of Utah Construction Co., which he joined in 1934 as projects manager. Construction projects he supervised included Coston and Roberts Dams in Montana . . . **Edward E. Wallace,** as San Diego district engineer for the California Division of Highways, after 42 years of service. He's held the San Diego post for 22 years.

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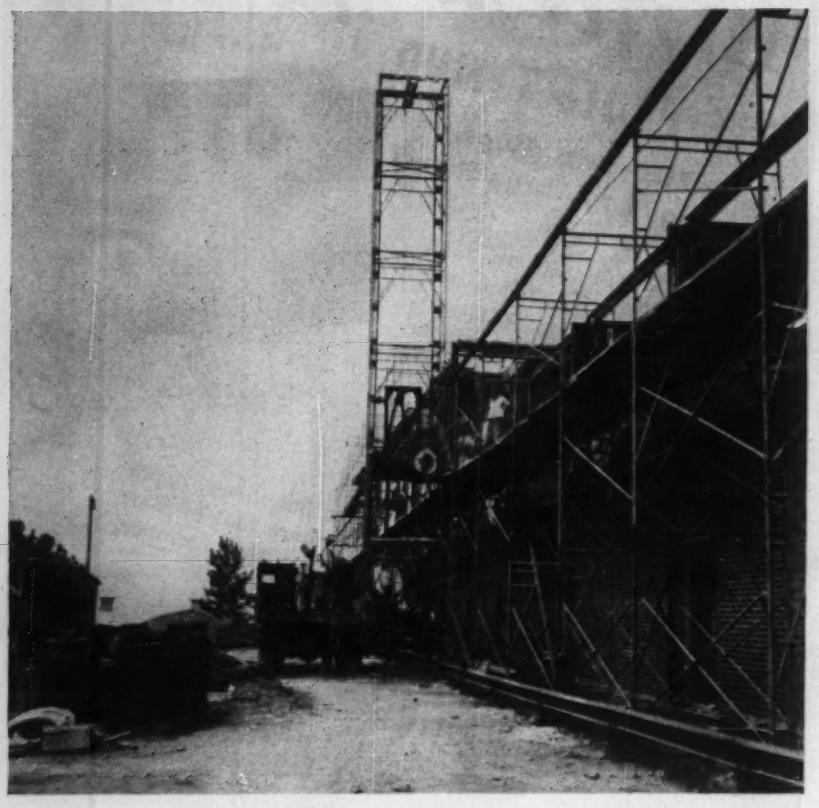


Hoist Traverses for Long Wall Work

A combination one and two-story building with wall heights of 23 and 35 ft created a materials handling problem for its builders. Too high for the use of fork trucks in delivering building materials, it was also too long and wide for the use of a standard hoist. With dimensions of 320 x 60 ft, a standard hoist would have meant wheeling materials a maximum of 380 ft on the scaffolding.

The hoist developed by the contractor—patents are pending—moves laterally along the outside of the scaffolding as well as performing normal lift service. The rolling hoist is fitted with wheels which rest on a rail mounted at the base of the scaffolding. This rail is supported by brackets which fit over standard scaffold jacks. Another rail is clipped to the upper part of the scaffolding to retain monorail trolleys attached to the hoist.

To move the hoist, a reversible drum which takes its power from the hoist engine applies a pull to a rope anchored to the scaffolding. Vertical movement is accomplished in the usual manner.

No special aligning of the scaffold was required and the scaffolding was anchored to the building in the usual manner: however, heavier wire was used. According to the developers, while the ground was reasonably level on this particular job, the hoist can be installed on any terrain on which standard scaffolding can be leveled.

It is expected that the rope drive can be replaced by a wheel drive and a curved track could be used for turning corners. A method to make the tower self-erecting is also planned.

The building which posed the problem was a plant at Belvidere, N. J., for the Celanese Corporation of America. Installation of the traversing elevator was aided on this job by the level terrain, but it is estimated that the cost of erection—about $1 per ft—could be duplicated or cut on other projects.

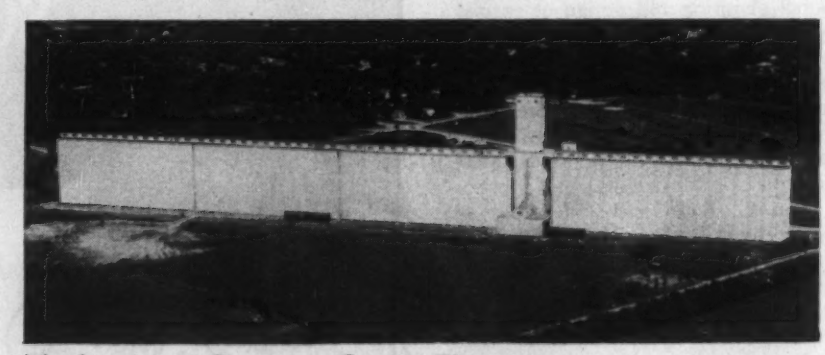
General contractor and developer of the traveling hoist was the Damon G. Douglas Co., Inc., 605 Broad St., Newark 2, N. J.

Reflective Barriers Made From Tape and U-Frames

Reflective barricades, made of 1½-in. wide reflective fabric, are being used by Northern States Power Company, St. Paul, Minn., to give warning to nighttime motorists of an obstacle ahead.

The barricades are inverted U-frames wrapped with the reflective fabric which reflects auto headlights at night.

Officials indicate that the barricades provide effective safety for the nighttime motorist, and convenience for the work crews because the smaller barricades are easier to store and handle.



Mudjacking Saves a Grain Elevator

Mudjacking came to the rescue of a section of the Equity Union Grain Elevator at Lincoln, Neb. The 273-ft long, 128-ft high section of the 5,000,000 bushel elevator had settled 8½ in. soon after completion. According to test borings, a poor soil condition had resulted from underground seepage from a sandstone ledge. The remedy applied by C. L. DeLong Co., Nebraska City, Neb., required eight months and 41 carloads of a 6:1 mixture of sand-cement. The sand contained 25% black loam; the remainder was fine blow sand. Pockets and cavities in the sandstone were filled by material pumped through pipes jacked down to the formation, and material was also pumped into holes 5 ft on centers to stabilize the soil 50 ft from the base of the section. Final step was the raising of the section by pumping material to distributing pipes placed through the walls and floor of a tunnel running beneath the elevator. H. H. Patton was superintendent for DeLong.

OBITUARIES

Victor T. Nydele, 60, Lieut. Col., A.U.S., retired, a construction engineer and veteran of both world wars, died Aug. 26. He served with the AEF in France during World War I in the enlisted ranks, and rose to the rank of lieutenant colonel in the China-Burma-India theatre during the second global conflict. In the Twenties and Thirties he was associated with Hegeman-Harris Co., Inc., New York City builders. He was inside superintendent when that company built the Chicago Tribune Tower, and held the same position during construction of the trylon and perisphere for the New York World's Fair of 1939. In recent years he had done consulting work in Washington.

Victor J. Bedell, 71, partner for the past ten years in the New Orleans firm of Bedell & Nelson, consulting engineers, died Aug. 28. Bedell, who was graduated from Tulane University in 1905 with a civil engineering degree, served with the Army Engineers during both world wars. He was assistant chief of staff at the New Orleans port of embarkation and commanding officer of the Mobile port of embarkation during World War II. From 1937 to 1941 he held the position of general manager of the New Orleans Public Belt Railroad.

Fred W. Miller, 70, engineer for the Colorado Highway Department for 33 years before his retirement in 1952, died late last month. He supervised construction of the top stretch of the world's highest automobile road atop Mt. Evans, 60 mi west of Denver. The drilling of a pioneer bore for a proposed automobile tunnel under the Continental Divide near Loveland Pass also came under his supervision.

Jay C. Nurse, 77, Sacramento, Calif., engineer, died Aug. 21. His career included 23 years as land surveyor in the Sacramento County engineer's office and five years as Sacramento city superintendent of streets.

• **David E. Gardner, Jr.,** 64, head of D. E. Gardner Construction Co., Newark and Columbus O., died July 31. He was engineer for construction of Aluminum Co. of America plant in Newark.

Everett E. Enos, a member of the City Engineer's office in Syracuse, N. Y., died July 18. He attended the college of engineering at Cornell University before entering city service.

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Southeast Expressway, Mass.	Massachusetts Dept. of Public Works
Narrows Bridge Site, Brooklyn & Staten Is., N. Y.	Ammann & Whitney, Engineers
125th Street Bridge Site, N. Y. C.	Ammann & Whitney, Engineers
Narragansett Bay	New England Power Service Company
Baker River (Wash.) Hydraulic Development	Stone & Webster, Engineers
St. Lawrence Power Project	Sanderson & Porter, Engineers
Massachusetts Turnpike	Howard-Needles-Tammen & Bergendoff, Engineers
Garden State Parkway, New Jersey	Goodkind & O'Dea, Engineers
The Connecticut Expressway	Loomis & Sullivan, Engineers
The Connecticut Expressway	Knappen-Tippetts-Abbett-McCarthy, Engineers
Portland, Pa. Power Plant	Metropolitan Edison Company

Engineers planning heavy construction no longer need put up with spotty data about the subsoil. Gahagan (a leader in hydraulic dredging since 1898) now has seismic survey crews covering the country, using portable equipment. They provide a continuous and accurate picture of bedrock and the nature of the overburden—quickly, inexpensively. For further details, write, wire or telephone Ken Sandbach, Vice President, Geophysical Survey Division, Gahagan Construction Corp., 90 Broad St., New York 4, N. Y. Telephone: Whitehall 3-2558.

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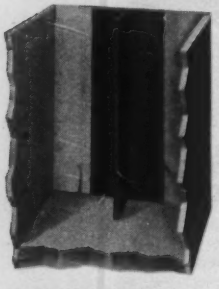
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LEGAL

Contractor May Lose Right To Claims By Final Payment

It is not uncommon for construction contracts to provide that the contractor will receive his final payment upon the engineer's or architect's certification that the work has been completed satisfactorily and that acceptance of the final payment will release all of the contractor's claims based on work done under the contract.

Courts have held that acceptance of the final payment under such a contract will constitute release of all claims arising out of the contract.[1]

In some cases,[2] where the contract contained such a provision, and the contractor accepted the last payment and executed a general release reserving the right to certain claims, it's been held that such reservation was ineffective and that nothing short of a modification of the contract would avoid the effect of the final payment acting as a release of all claims. However, in one case,[3] the court held the acceptance of the final payment did not bar an action to recover damages for breach of contract.

In view of the fact that it is the usual practice to retain a percentage of the monthly payments due the contractor until the work is finally completed, the amount so retained will be considerable in a big job. In the event the contractor has large claims which have been rejected, he is in an embarrassing position when he must chose between accepting the final payment and abandoning his claims, or deferring receipt of the money that concededly is due him until the determination of litigation which may extend over a period of years.

There are two possible solutions. The party for whom the work is being done may consent to pay the contractor most of the money due him and retain a small amount of the retained percentage. Thus, in one case,[4] the retained percentage amounted to $72,760.16 and the contractor was paid $71,000, leaving $1,760.16 of the final payment due; the court held there was no acceptance of the final payment and the contractor was not barred from bringing an action to recover for claimed extra work, payment for which was refused.

Refusal to pay a contractor the retained percentage unless he waives his rights to his other claims has been criticized by the New York Court of Claims, which has approved of the practice of suing to recover for both the retained percentage and other claims. In one case, each item was set forth as separate causes of action. After the party for whom the work was done interposed its answer, conceding that it owed the amount of the retained percentage, the contractor made application to the court to separate the cause of action to recover for the retained percentage from the other causes of action. The court granted the contractor judgment for the amount of the retained percentage plus interest from the date when the work was certified as being completed.[5]

(1) MacArthur Bros. Co. v. City of New York, 177 App. Div. 725, affirmed 224 N.Y. 629.
(2) Oakhill Const. Co. v. City of New York, 262 App. Div. 530; Allen v. City of Oneida, 210 N.Y. 496.
(3) St. George Paving Co. v. City of New York, 17 N.Y.S. 2d 540.
(4) Daniels Co. v. City of New York, 196 App. Div. 856.
(5) Rusciano & Son Corp. v. State of New York, 201 Misc. 690, 110 N.Y.S. 2d 777, affirmed 281 App. Div. 733; Rusciano & Son Corp. v. State of New York, 278 App. Div. 999.

A Subcontractor May Sue Owner Instead of General

When a subcontractor completes a job after the general contractor has backed out, does the sub turn to the owner or the general for compensation?

According to the Supreme Court in Pennsylvania, he collects from the owner, if the latter authorized the sub to go ahead and finish the job.

In the case before the court an owner entered into a contract for the construction of a building. The general contractor subcontracted part of the work to another contractor. Before the job was completed, the general contractor abandoned the job. The owner then entered into an oral contract with the subcontractor to complete the work on the same terms contained in the general contract.

When the work was completed, the owner refused to pay the subcontractor for the work done by him, claiming that he should seek compensation from the general contractor who had originally employed him.

The court found that the owner had entered into a separate contract with the subcontractor whereby the latter was to complete the work at the same price set forth in the prime contract and granted the subcontractor a recovery. The judgment was affirmed on appeal.[1]

According to the court, the general rule is this: Where the general contractor abandons the work and directs a subcontractor to proceed to com-

plete the work and promises to pay the subcontractor for the labor and materials furnished, such conduct creates a separate enforceable contract between owner and the subcontrctor.

[1]Costanzo v. Chianese, 110 A. 2nd 802, Superior Court Of Penn., Jan. 14, 1955.

Substantial Performance Means Slight Deviations

What do courts consider "substantial performance" under building contracts? The Supreme Court of Colorado sums the rule up this way:

"Substantial compliance with reference to contracts, means that although the conditions of the contract have been deviated from in trifling particulars not materially detracting from the benefit the other party would derive from literal performance, he has received substantially the benefits he expected, and is, therefore, bound to pay.

"Where a builder has undersignedly violated the strict terms of his contract, and the owner has received and retained benefit of builder's labor and material, and the builder is ready to remedy defects which are trivial and slight, there is a substantial compliance and the owner is entitled to such damages as will supply the material and labor required to put the structure in condition called for."

The court had before it an action by a contractor to recover the amount allegedly due under a building contract. The owner interposed the defense that the foundations had not been properly built and that cracks and seepage had developed in the walls soon after the work had been completed. The contractor obtained a recovery at the trial, but this judgment was reversed on appeal, the appellate court holding that the contract had not been substantially performed.[1]

[1]Newcomb v. Schaeffler, 279 P. 2d 409, Supreme Court of Colorado, Jan. 24, 1955.

Oral Changes In Contract May Create New Agreement

When a written contract is changed orally instead of by writing, a lot of litigation may develop at the time of the final accounting.

This happened in Massachusetts when a contractor undertook to remodel an old building for a doctor under a written contract to provide all the materials and labor. The contract didn't contain an unset price for doing the work. An estimate of $27,500.77 had been submitted previously by letter.

After work was started, the contractor advised the doctor that the job would cost $6,000 more than the original estimate because of difficulty in doing the plumbing work. He assured the doctor the cost would not exceed this figure.

The owner relied upon this statement and directed the contractor to proceed with the work for that amount. After the job was completed, the contractor was paid $37,409.49, which covered his original estimated cost, plus the cost of doing some extra work, plus the additional $6,000 that the owner agreed to pay for the increased cost of doing the plumbing work. Thereafter, the contractor brought an action to recover additional compensation that he claimed was the difference between the actual cost of doing the work and what had been paid to him.

At the trial, the owner wanted to offer testimony showing that after the written agreement was signed, the parties entered into an oral agreement which superseded the original agreement whereby it was agreed that the upset cost of the work would not exceed the amount of the original estimate plus $6,000. The trial court refused to allow such testimony on the ground that the original written agreement could not be varied by an oral agreement and directed a verdict in favor of the contractor.

The judgment of the trial court was reversed on appeal,[1] the appellate court holding that the testimony in question was not offered for the purpose of modifying the terms of the written agreement, but rather to show that after the execution of the written agreement, a new oral agreement was entered into whereby the contractor agreed to perform the work at a stipulated upset price.

The contractor contended that since the original contract was in writing and under seal it could not be modified by a subsequent oral agreement. The court said that this is not the law where a new oral contract is entered into, superseding the original contract.

[1]Severance & Sons, Inc. v. Angley etc., 125 N.E. 2d 415, Judicial Supreme Court of Mass., April 1, 1955.

Some Available Remedies For a Breach of Contract

One who has been injured by a breach of contract may treat the contract as rescinded and sue to recover for the fair and reasonable value of the work performed. He may also keep the contract alive, being at all times ready and able to perform. Another alternative is to treat the breach as a repudiation of the contract and bring an action to recover the profit he would have realized if he had not been prevented from performing.[1]

[1]Oliver v. Campbell, 273 P. 2d 15, Supreme Court of California, June 30, 1954.

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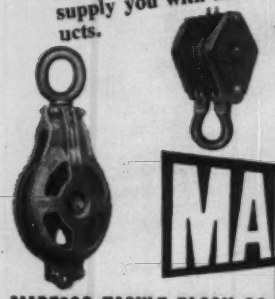

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RESEARCH

Battelle Institute Studies Salt Water Purification

Scientists at Battelle Institute, Columbus, Ohio, will undertake research on sea water purification by "zone refining" as part of the U. S. Department of the Interior's Saline Water Conversion Program.

"Zone refining," as the term is usually used in technology, is a metallurgical process in which a section of a metal bar is melted. Impurities have different solubilities in solid and molten metal. Because of this difference in solubility, the process results in concentration of the impurities at the ends of the bar after the molten zone has moved along the length of the bar. In this manner, the major portion of the bar becomes purer than the original bar prior to zone refining.

Battelle engineers believe that zone refining by freezing may be feasible for sea water purification. If the method proves successful, water reformed from ice after freezing would be pure enough for drinking.

The method has the advantage over distillation processes that there is less energy needed to convert water into ice than into steam, and in addition, most natural sources of water are nearer water's freezing point than its boiling point.

High Aerodynamic Stability For Mackinac Bridge

Wind tunnel tests on a model of the Mackinac suspension bridge in the University of Washington laboratories have upheld the views of the designer, D. B. Steinman, consulting engineer of New York, that the structure will have unusually high aerodynamic stability. The tests indicate that the bridge will have complete stability against all modes of oscilation (vertical, torsional and coupled) at all wind velocities and all angles of attack.

The outstanding feature of the design is the provision of 10 ft wide, open spaces between the stiffening trusses and outer edges of the roadway; the bridge trusses are spaced 68 ft apart and the roadway is only 48 ft wide. The design also provides the equivalent of an opening along the centerline of the bridge, since the two outer lanes are solid, while the two inner lanes and the center mall have an open grid construction. Maximum torsional stability has been achieved by providing two systems of lateral bracing, located in the planes of the top and bottom chords of the truss, a feature recently added to the Golden Gate Bridge in San Francisco.

The model was also tested with all openings in the deck closed as if by ice, and even under these conditions its aerodynamic stability was maintained.

Prof. F. B. Farquharson, director of the laboratory at the University of Washington, conducted the tests.

Plans Proceed for Building Pleasant Valley Dam Model

Washington State College at Pullman is building a large scale model of the Pleasant Valley hydroelectric project. Kinsey M. Robinson, president of the Pacific Northwest Power Co, has announced that the college will construct a 1-to-50-ft scale model of the Snake River dam.

The working model will stand 12 ft high and reach 25 ft across. Robinson estimated the model would take 10 weeks to build and three months will be required studying water flow characteristics of the Pleasant Valley site.

R. L. Albrook, director of industrial research at WSC, said the model was started outdoors but that a building will be erected over it. The model represents a dam 492 ft high, with a 1200-ft arch across. The damsite, itself, is 15 mi southwest of Whitebird, Idaho.

With the model, engineers will use 10,000 gal of water to study flows representing 300,000 cfs.

Concrete Durability Linked To Shrinkage Rate of Cement

Results of tests being conducted by the National Bureau of Standards indicate, cements with high shrinkage rates, immediately after hardening, tend to crack and craze sooner than cements with low shrinkage rates.

According to NBS researchers, if other factors are equal, concrete made with cement having higher cracking resistance will be more durable, and as the NBS tests indicate, this will be the concrete composed of the cement with the lower shrinkage rate.

Included in the study were 180 samples of portland cement from all area of the United States; 7 portland blast-furnace slag cements, 2 portland-pozzolan cements and 5 portland cements from other countries.

The investigation was conducted by D. N. Evans, A. C. Figlia, and R. L. Blaine.

BOOKS

Reports and Pamphlets

A Brighter Future for America's Cities—Chamber of Commerce of the United States, Washington 6, D. C. $1.00

How To Get the Most Out of Our Streets—Chamber of Commerce of the United States, Washington 6, D. C. $1.00

Research on Highway Bridge Floors at the University of Illinois, 1936-1954—Reprint Series No. 53, University of Illinois Engineering Experiment Station, Urbana, Ill. $0.25

Strength in Shear of Reinforced Concrete Beams—Bulletin No. 428, Engineering Experiment Station, University of Illinois, Urbana, Ill. $1.00

Observed and Computed Settlements of Structures in Chicago—Bulletin No. 429, Engineering Experiment Station, University of Illinois, Urbana, Ill. $0.90

Proceedings Highway Engineering Conference — University of Mississippi, University, Miss. $2.00

Gazetteer of Ohio Streams—Ohio Department of Natural Resources, Division of Water, Columbus, Ohio.

Training Highway-Department Personnel—Bulletin 103, Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $0.45

Vehicle Climbing Lanes—Bulletin 104, Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $0.60

Bituminous Paving Mixtures: Fundamentals for Design, Bulletin 105—Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $0.75

Manpower Needs in Highway Engineering—Bulletin 106, Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $0.60

Report of Committee on Roadside Development—Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $0.90

Proceedings of the Second Louisiana Structural Engineering Conference, Oct. 7, 1954—Engineering Experiment Station, Bulletin No. 49, College of Engineering, Baton Rouge, La.

The Hydraulic Jump: A Bibliography, 1819-1953 — Compiled and published by Edward A. Elevatorski, 513 Dartmouth, S. E., Albuquerque, N. M. $0.75

Highway Officials and Engineers: A Directory of Personnel as of June 1955. American Road Builders Association, World Center Bldg., Washington 6, D. C. $1.00

Highway Revenues and Expenditures: 1921-1954 — National Highway Users Conference, 966 National Press Bldg., Washington 4, D. C.

Investigation of Travel of Pollution —Publication No. 11, State Water Pollution Control Board, Sacramento, Calif.

Symposium on Methods of Testing Building Constructions — ASTM Special Technical Publication No. 166, American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. $2.75

Daylighting for Schools in the State of Washington—Bulletin 228, State College of Washington, Pullman, Washington.

Comparative Costs of Low-Cost Schools — Research Report No. 3, Structural Clay Products Research Foundation, 20 North Wacker Dr., Chicago, Illinois.

Professional Engineers' Income and Salary Survey—National Society of Professional Engineers, 1121 Fifteenth St., N. W., Washington 5, D. C. $0.50 to members; $1.00 to others.

Miscellaneous Notes

• **The Legal aspects** of relocating utilities in connection with highway construction work are fully covered in Special Report No. 21 of the Highway Research Board "Relocation of Public Utilities Due to Highway Improvements." Included is an analysis of 250 of the more important legal decisions relating to this subject. Copies can be obtained by writing to the board at 2101 Constitution Ave., Washington 25, D. C. The price is $6.00.

• **Slope Staking Made Easy** is the title of a little booklet prepared by Emanuel Johnson, 639 E Street, San Diego, Calif. The author has compiled a group of tables designed to simplify a tedious job that is generally assigned to the young engineers on highway and railway construction projects.

Copies can be obtained from the author for $1.00.

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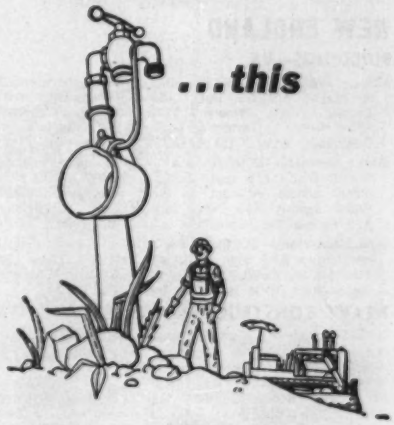

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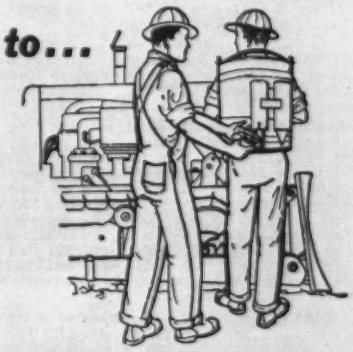

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

Mass., Braintree—ARMORY—BA 9/19—Commonwealth of Mass., Military Dpt., 905 Commonwealth Ave., Boston, 1-unit armory. $275,000. Plans deposit $50. Kendall, Taylor & Co., Inc., 12 Norfolk St., Cambridge, archt. CD 4/18.

Mass., Deerfield—SCHOOL—BA 9/22—Frontier Regional School Dist., c/o supt. Schools, 222 Main St., regional school adjacent to high school. $500,000. Plans deposit $50, refundable. James A. Britton, 315 Federal St., Greenfield, archt. CD 1/25.

Conn., Waterford—SCHOOL—BA 10/6—Town, Bd. Selectmen, Town Hall, high school and cafeteria, Clark Lane School Site. $600,000. Warren H. Ashley, 967 Farmington Ave., West Hartford, archt. CD 11/23.

HEAVY CONSTRUCTION—LB & CA

MAINE—State Hy. Comn., State House, Augusta, Me.—Thomas DiCenzo, 75 Narker St., Calais, Me. LB $503,848, est. $500,000. b. conc. F.A. Proj. F 037-1 (4), Monson and Shirley;

Me.—Earle Keene, Gorham, Me. LB $116,542, est. $120,000 bit. grav. F.A. Secondary Proj. S 0237 (4) and S 0237 (5), Kingfield and Jerusalem. Bids Aug. 31. CD 8/26.

† J. R. Cianchette, 120 Main St., Pittsfield, Me., LB, $124,575, est. $50,000-$100,000. relocation Willard School Rd. Air Force Station, ENG-19-016-56-13, LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Aug. 26. CD 8/24.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Mass.—E. A. Jenson & Sons, Inc., Main St., Granville, Mass., LB, $145,327, est. $120,000, hy. work, Commerce and Dickinson Sts., Longmeadow and Springfield;

Mass.—Continental Constr. Corp., 437 Main St., Lynnfield Centre, Mass., LB, $209,856, est. $180,000. hy. reconstr. Main St., Route 12, S-103 (1), Colrain;

Mass.—Bayer & Mingolla Constr., Inc., 550 Park Ave., Worcester, Mass., LB, $113,457 est. $124,500 hy. work section of Chandler St., Worcester. Bids Aug. 30. CD 8/17.

† The Nicholson Co., Inc., 10 Rockefeller Plaza, New York, N. Y., LB, $849,771, est. $800,000-$900,000. Special AAA Facilities, Beverly Airport and Brimball Hill reservoir, Beverly, ENG-19-01 -56-14, MASSACHUSETTS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Aug. 26. CD 8/17.

BUILDINGS—LB & CA

Winston P. Titus, 33 Elm St., Lakeport, N. H., CA $100,000. TANNERY BLDG., River Rd., BOW, N. H. Cordovia, Inc., c/o W. L. Foss, Industrial Dir., State Planning & Development Comn., State House Annex, Concord, N. H. CD 7/1.

Danco Builders, High St., Somersworth, N. H. Owner Builds. $550,000. 52 RESIDENCES, High St. "Kelvin Park," SOMERSWORTH and ROLLINGSFORD, N. H.

Sevenel, Inc., Hyde Park, Mass. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, "Bel-Mar", Acapesket Section, FALMOUTH, MASS.

Theodore Loranger & Sons, 404 Nash Rd., New Bedford, Mass., CA, $542,887, est. $500,000. NB 667-1 HOUSING for the Elderly, Tremont and Liberty, North Hillman Sts., etc., NEW BEDFORD, MASS. New Bedford Housing Auth., 52 Walker St., New Bedford, Mass. Bids July 20. CD 8/27, under LB.

Westcott Constr. Co., Savings Bank Bldg., North Attleboro, Mass., CA, $348,500. elementary SCHOOL, Roosevelt Ave., NORTH ATTLEBORO, MASS. Town, School Bldg. Comn., North Attleboro, Mass. Bids u 12 Co 8/.

McCutcheon Co., 250 Stuart St., Boston, Mass., CA, $527,487, est. $500,000, extensive remodeling to HOSPITAL, Longwood Ave., ROXBURY, MASS. Boston Lying-In Hospital, 221 Longwood Ave., Roxbury, Mass. Bids June 2. CD 6/8, under LB.

▲ Stony Brook Village Corp., 30 Alwin St., Hyde Park, Mass. Owner Builds. $3,600,000. 243 HOUSES, residential development, WEST ROXBURY-HYDE PARK, MASS.

▲ Park Constr. Co., Inc., 40 Court St., Boston, Mass. LB $1,660,000. M-615 ADMISSIONS BLDG., State Hospital, WALTHAM, MASS. State, Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Sept. 2. CD 8/17.

▲ Vara Constr., Inc., 719 Huntington Ave., Boston, Mass. CA $2,078,352, est. $2,000,000. JUNIOR HIGH SCHOOL, Cabot Reservation, WALTHAM, MASS. City, City Hall, Waltham, Mass. CD 8/24, under LB.

Fabrizio & Martin, Inc., 55 Railroad Ave., South Norwalk, Conn., CA, $472,000. Springwood Elementary SCHOOL, NORWALK, CONN. Bd. Educ., Norwalk, Conn. Bids Aug. 23. CD 8/9.

▲ Fusco-Amatruda Co., 59 Amity Rd., New Haven, Conn., LB, $1,289,000. Harry M. Bailey Junior High SCHOOL, WEST HAVEN, CONN. Town Bd. Educ., Town Hall, West Haven, Conn. Bids Aug. 31. CD 8/1.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

D. C., Wash.—BA 9/26—D. C. Govt., Dpt. Sanitary Eng., 499 Pa. Ave. N. W., 18 in. O. D. steel water main installation, 9th St. Bridge between "T" St. and New York Ave. N.E. CD 7/14/44.

N. Y., Brooklyn—BA 9/28—Dpt. P. Wks., Municipal Bldg., New York Zone 7, Contr. 6, structures and equipt.; Contr. 7, electrical; Contr. No. 8, heating and ventilating, Contr. No. 9, plumbing for constr. Greenpoint Incinerator, Brooklyn Boro. Plans deposit $100.

BUILDINGS—BA

▲ N. J., Lawrenceville—SCHOOL—BA 9/22—Roman Catholic Diocese of Trenton, 153 N. Warren St., Regional Roman Catholic High School. $2,500,000. William W. Slack & Son, 1401 W. State St., Trenton, archts. CD 12/30.

† Md., Bethesda—BUILDING—BA 9/30—General Services Admin., P. Bldgs. Serv., General Services Bldg. 19 and F. Sts. N.W., Wash. 25, D. C., remodeling Building 9, National Institute of Health, Proj. 18-063-3.

HEAVY CONSTRUCTION—SLC

▲ Pa., Phila.—WHARF—Tippetts-Abbett-McCarthy & Stratton, engrs., 62 W. 42 St., New York, N. Y., soon let contract, wharf repairs, for Gulf Oil Corp., 30 St. and Penrose Ave., Phila., Pa. $5,000,000.

BUILDINGS—SLC

Del., Wilmington—SCHOOL—St. Paul's Roman Catholic Church, 300 N. Van Buren St., soon lets contract, school. $350,000. J. George McDermott, 1307 Washington St., archt. CD 7/31/46.

▲ Del., Wilmington—HIGH SCHOOL, etc.—Salesianum School for Boys, 805 West St., soon lets contract, high school and faculty house, $2,000,000. Gleeson & Mulrooney, Fox Bldg., Phila., Pa., archts. CD 2/5/53.

Pa., Newtown—SUPERMARKET— American Stores Co., 424 N. 19 St., Phila., soon lets contract, supermarket and parking area. $350,000, A. J. Faulhaber, c/o owner, ch.engr.

HEAVY CONSTRUCTION—LB & CA

▲ Andrew Catapano & Co., 88-43 76th Ave., Glendale, N. Y., LB $1,447,550, est. $1,210,341. Contr. No. 2, sanitary sewer and appurtenances in Brookville Blvd. from 147 Ave. to Mayda Rd., etc., Queens Boro, NEW YORK, President Queens Boro, Boro Hall, 120-55 Queens Blvd., Kew Gardens 24, N. Y. Bids Aug. 30. CD 8/22.

Wm. Casey & Sons, Inc., 2 Lakeview Ave., Lynbrook, N. Y. CA $204,382, 4,600 ft. storm water drain, Plainview, MINEOLA, N. Y. County Executive, Nassau Co. Old County Court House, Mineola, N. Y.

Hansen-Jensen, Inc., 311 Morris Ave., Elizabeth, N. J., LB, $430,000, (2 bidders) Contract N-61-a, general construction, service bldg., at Service Area ES on Newark Bay-Hudson County Extension of N. J. Turnpike, Jersey City, Hudson Co. NEW JERSEY. New Jersey Turnpike Auth., Administration Bldg., New Brunswick, N. J. Bids Aug. 30. CD 8/9.

John C. Morris Co., 206 Beacon Ave., Jersey City, N. J., LB, $219,384 (5 bidders) Contract N-30B, installing roadway lighting from Newark Bay Bridge to south side of Holland Tunnel interchange on Newark Bay-Hudson County extension of N. J. Turnpike, Bayonne and Jersey City, Hudson Co., NEW JERSEY, N. J. Turnpike Auth., Administration Bldg., New Brusnwick, N. J. Bids Aug. 30. CD 8/18.

NEW JERSEY—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,

Mal-Dore Contg. Co., Verona, N. J., LB, $347,022 (3 bidders) Contract N-56, misc. construction between Communipaw Ave. and Grand St. and between 3 St. and Jersey Ave. on Newark Bay-Hudson County extension of N. J. Turnpike, Jersey City, Hudson Co. Bids Aug. 30. CD 8/19.

▲ PENNSYLVANIA—Pennsylvania Turnpike Comn., 11 N. 4th St., Harrisburg,

Latrobe Road Constr. Co., Latrobe, Pa., LB $3,678,391, constr. 4.53 mi. (Sec. 37L) northeastern exten. of Turnpike in city of Scranton and South Abington Twp., Lackawanna Co. Bids Sept. 1. CD 8/12.

Lipsett, Inc., 99 Park Ave., New York, N. Y., LB $787,269, tunnel ventilation sys. and carbon monoxide analyzing sys. at T. J. Evens Tunnel, northeastern exten., Carbon and Lehigh Counties, PENNSYLVANIA. Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, Pa. Bids Aug. 31. CD 8/1.

▲ Roberts Filter Mfg. Co., Darby, Pa., LB $333,000. filter plant, furnish, install pumps slow mixers, etc. Pine Grove, CHESTER, PA. Chester Municipal Water Auth., 5 and Welsh Sts., Chester, Pa. Bids Aug. 18. CD 7/11;

Cestone Bros. Inc., 1403 Broad St., Bloomfield, N. J. LB $197,045. Contr. 2, add piping between Pine Grove and Chester and Marcus Hook (Chester, Pa.);

Vanguard Constr. Co., 369 Lexington Ave., New York, N. Y., LB $549,407. Contr. 4, filter plant addn. and reinforcing mains (Chester, Pa.);

Douglas A. Sommak, Huntingdon Valley, Pa., LB $275,553. Contr. 1, add piping between Pine Grove and Chester and Marcus Hook (Chester, Pa.).

McCloskey & Co., 1620 W. Thompson St., Phila., Pa. LB $399,931, sewers, Bid 2446, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Samuel S. Baxter, Water Comr., c/o owner, water comr. CD 2/4/44;

Carbone & Carpino Constr. Co., 1835 Dudley St., Phila., Pa., LB $74,739, sewers, Bid 2450 (Phila., Pa.);

Pontarelli & Feraco, Verree Ave. and Welsh Rd., Phila., Pa. LB $95,401. sewers, Bid 2448 (Phila. Pa.);

Globe Contg. Co., Victory Ave. and Cobbs Creek Parkway, Upper Darby, Pa., LB $83,015, sewers. Bid 2449. (Phila. Pa.).

S. & F. Constr. Co., 510 Bartram Rd., Willow Grove, Pa., LB $137,486, sewers, Bid 2447 (Phila. Pa.).

General State Auth., 18 and Herr Sts., Harrisburg, Pa. rejected bids July 27, sewage disposal plant imprvs. at Polk State School, POLK, PA. LB $181,896 general constr.; LB $107,900, piping and equip. Will re-advertise. CD 8/3, under LB.

▲ Whiting Turner Contg. Co., National Marine Bank Bldg., Baltimore, Md., CA, $3,818,993. pier addns. and imprvs.; McComas St. Terminal, BALTIMORE, MD. Western Maryland Ry. Co., F. L. Etchison, ch. engr., Standard Oil Bldg., Baltimore, Md. Bids Aug. 24. CD 8/29, under LB.

BUILDINGS—LB & CA

† Deline Constr. Co., 738 W. Main St., Watertown, N. Y., LB $139,900 (8 bidders) Prop. No. 1 of combined ordnance maintenance and concentration site SHOP, NYNG Concentration Site Area No. 8, U. S. Military Reservation, NG-30-192-55-15, CAMP DRUM, N. Y. U. S. Property & Fiscal Officer for New York, New York State Arsenal, 201 64th St., Brooklyn 20, N. Y. Bids July 28. CD 7/5.

A. Frederick & Son, Inc., Chamber of Commerce Bldg., Watertown, N. Y. LB $131,373 (8 bidders) Prop. 1;

(Continued on page 58)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

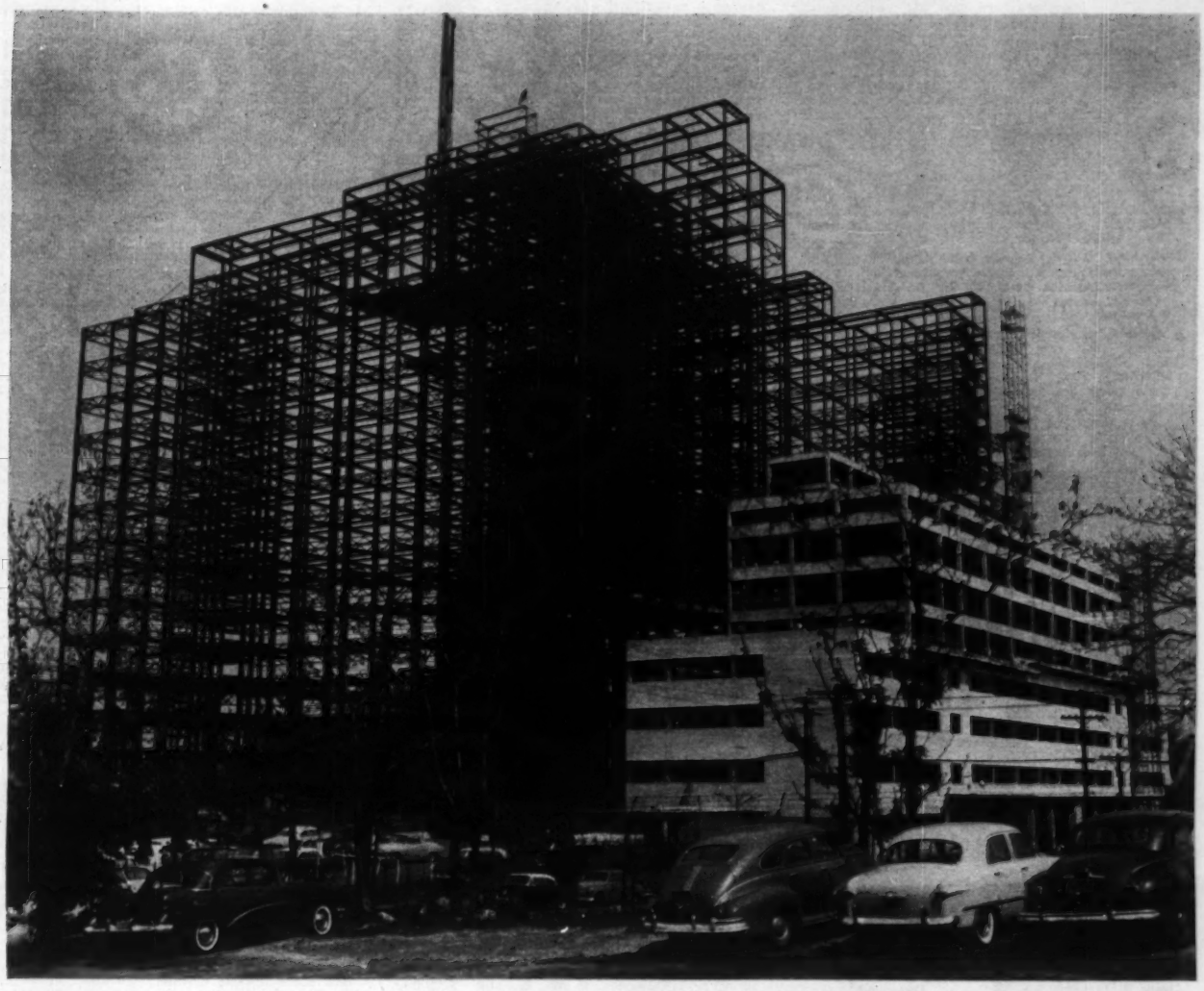
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

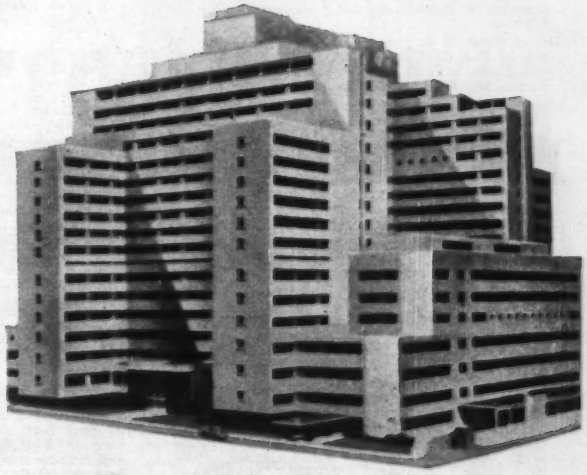


Steelwork Completed for Atlanta Medical Center

Grady Memorial Hospital, at Atlanta, is to be one of the largest and most complete medical centers in the Southeast. Its 7000-ton steel framework, fabricated and erected by Bethlehem, was topped out the day this picture was taken.

The main portion of the hospital, designed for the care of general surgical and medical patients, varies between 19 and 21 stories in height. The lower wing to the right provides modern out-patient clinics, a large emergency department and other clinics. The entire structure comprises a gross area of 1,000,000 sq ft, nominally rated at 1000-bed capacity.

The project is an undertaking of the Fulton-DeKalb Hospital Authority. *General Contractor:* Robert E. McKee, Inc., Dallas, Tex. *Architects and Engineers:* Robert & Company Associates, Atlanta.



Model of the completed Grady Memorial Hospital, Atlanta

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

(Continued from page 56)
LB $122,373 (8 bidders) Prop. No. 3, (Camp Drum, N. Y.).

George E. Emerson, Inc., 34 Britton St., Pittsfield, Mass., CA $795,231. Ichabod Crane Central SCHOOL, Kinderhook, VALATIE, N. Y. Central School Dist. No. 1, Ralph Duck, pres., Kinderhook, N. Y. Bids Aug. 26. CD 8/22.

▲ **R. A. Prendergast, Inc.**, 3010 Sunset Ave., Atlantic City, N. J., LB $1,100,115. Regional Junior-Senior HIGH SCHOOL, Pinewald, BAYVILLE, N. J. Central Regional High School, Bayville, N. J. Bids Aug. 12. CD 7/13.

Omar Swift, R. D., Bridgeton, N. J., Separate Contracts, $480,000. RESIDENTIAL DEVELOPMENT, Fairfield Twp., BRIDGETON, N. J.

Mount Holly Estates, c/o Burlington Constr. Corp., Att. Robert Rodrigues, Jacksonville Rd., Mount Holly, N. J., Separate Contracts, $800,000 RESIDENTIAL DEVELOPMENT, Ashurst Rd., MOUNT HOLLY, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

▲ **Arthur G. McKee & Co.**, 2300 Chester St., Cleveland, O., CA Total cost $3,000,000-$3,500,000. cresylic acid REFINERY and remodeling existing PLANT NEWARK, N. J. Pitt-Consol Coal Co., (Pittsburgh Consolidation Coal Co.) Koppers Bldg., Pittsburgh, Pa.

J. G. Leone, 122 Glen Arbor Rd., Havertown, Pa., Separate Contracts, $350,000. RESIDENTIAL DEVELOPMENT, Herbert Ave., etc., PENNSAUKEN, N. J. Fein & D'Anastasio, Pennsauken, N. J., archt.

Dover Park Estates, Att. Howard Bernstein, Toms River, N. J. Separate Contracts, $528,000. RESIDENTIAL DEVELOPMENT, James St., etc. TOMS RIVER, N. J. David Marner, 305 Bond St., Asbury Park, N. J., archt.

▲ **Canterbury Estates**, Att. Edward Cantor, Nottingham Way and Paxson Ave., Trenton, N. J., Separate Contracts, $1,500,000. 92-unit RESIDENTIAL DEVELOPMENT, Nottingham Way, TRENTON, N. J.

John J. Klein, Eggerts Crossing Rd., Trenton, N. J., Separate Contracts, $550,000. RESIDENTIAL DEVELOPMENT, Hamilton Twp., TRENTON, N. J.

Oak Forest, Inc., Att. Mr. Spiegel, Quakerbridge and Youngs Rd., Trenton, N. J., Separate Contracts, $600,000. RESIDENTIAL DEVELOPMENT, Quakerbridge Rd., TRENTON, N. J.

Smith Constr. Co., 46 Prospect St., Trenton, N. J., LB $350,000. SYNAGAGUE, TRENTON, N. J. Adath Israel, c/o Lewis S. Kaplan, archt., 25 N. Montgomery St., Trenton, N. J., archts. CD 8/30.

▲ **Philip B. Robinson**, Lewis Tower Bldg., Phila., Pa., Separate Contracts, $7,500,000, 500-unit RESIDENTIAL DEVELOPMENT, Ventnor Heights Sect., 127 S. Newton Ave., VENTNOR, N. J.

▲ **Stone Constr. Co.**, 1717 Brandywine St., Phila., Pa. CA $1,000,000. SHOPPING CENTER, incl. supermarket, stores, parking lot, Huntingdon Pike, ABINGTON, PA. Morris A. Kravitz & Co., Inc., 225 S. 15 St., Phila. Pa. George W. Neff, 1520 Locust St., Phila., Pa., archt.

Wayne A. Van Curen, Broomall, Pa., CA $450,000. RESIDENTIAL DEVELOPMENT, Malin Rd., BROOMALL, PA. Lincoln Lane Home, 500 N. 63 St., Phila., Pa.

George R. Taylor & Son, 76 Oak St., Forty Fort, Pa. LB $808,000, general constr. Elementary and Junior-Senior HIGH SCHOOL for Elk Lake Joint School Dist., DIMOCK TWP. (P.O. SPRINGFIELD), PA. Pub. School Building Auth., 101 S. 25 St., Harrisburg, Pa. Bids Aug. 30. CD 8/12.

High Voltage Engineering Corp., 7 University Rd., Cambridge, Mass. CA Est. $500,000. 3 milllon volt atom smasher (Van de Graaff Accelerator) at Nuclear Science LABORATORY, HARMARVILLE, PA. Gulf Oil Co. (Research & Development Div.), Harmarville, Pa. CD 4/22/48.

Barclay White & Co., 22 N. 36 St., Phila., Pa. CA Approx. $500,000. LABORATORY and OFFICE, PHILA., PA. Smith, Kline & French Laboratories, 1530 Spring Garden St., Phila., Pa. Bids Aug. 26. CD 8/30.

Conway & Ryan, Inc., 2313 Fairmount Ave., Phila., Pa. LB $350,000. CHURCH and SCHOOL BLDG., alterations to CONVENT and RECTORY, PHILA., PA. St. Hedwigs R. C. Church, 22nd St. and Parkway, PHILA. PA. William H. Stickel, Tee Rd., Oreland, Pa., archt.

Cedarbrook Corp., 1454 Greenwood St., Phila., Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, Chalfont Dr., etc., PHILA., PA.

Lauter Constr. Co., 112 S. 16 St., Phila., Pa. CA $600,000. 72,000 sq. ft., brick, block and steel FACTORY addns., PHILA., PA. Michael Flynn Mfg. Co., Tabor Rd. and Godfrey Ave., Phila., Pa. Bids Aug. 10. CD 8/4.

▲ **John McShain, Inc.**, 17th and Spring Garden Sts., Phila., Pa., CA $2,000,000. CATHEDRAL of SS Peter and Paul, PHILA., PA. R. C. Archdiocese of Phila., 1723 Race St., Phila., Pa. Eggers & Higgins, 100 E. 42 St., New York, N. Y., archts. Eipel Engineering, 101 Park Ave., New York, N. Y., engr.

▲ **Ridley Parkview Development Co.**, 509 Lindsey St., Ridley Park, Pa. Separate Contracts. $1,230,000. RESIDENTIAL DEVELOPMENT, Lindsey St., etc., RIDLEY PARK, PA.

Centrella Developers, Inc., 3264 Kensington Ave., Phila., Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, High View Dr., etc., SOUTHAMPTON, PA.

▲ **Emil Stahl & Son**, Southampton, Pa., Separate Contracts. $2,000,000. 200 RESIDENCES, Stahl Rd., etc., SOUTHAMPTON, PA.

Ritter Bros., 1511 Cameron St., Harrisburg, Pa. CA $937,000. General constr. GENERAL CLASSROOM, OFFICE at Pennsylvania State University, UNIVERSITY PARK, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. CD 8/31, under LB.

▲ **Jack Fuchs**, 421 St. Davids Rd., Wayne, Pa. Separate Contracts. $1,150,000. RESIDENTIAL DEVELOPMENT, Spring Mill Rd., WEST CONSHOHOCKEN, PA. John B. Thomson, 125 Coulter Ave., Ardmore, Pa., archt.

Westshire, York Rd., Timonium, Md. Separate Contracts. $869,000. One hundred and fifty-eight 2 story, 16x31x19 ft., brick DWELLINGS, Ganley Drive, Northshire Rd., Hinsdale Rd., near TIMONIUM, MD. Lawrence A. Menefee, 347 N. Charles St., Baltimore 1, Md., archt. Whitman, Requardt & Assoc., Loyalo Bldg., Charles and Preston Sts., Baltimore 2, Md., engrs.

▲† **George Hyman Constr. Co.**, 1010 Vermont Ave. N.W., Wash., D. C., LB, $17,200,000 (8 bidders) 7 story superstructure, U. S. Senate OFFICE BLDG., First St. between Constitution Ave. and C St. N. E. WASH., D. C. Office of the Architect, U. S. Capitol, Wash., D. C. Bids Sept. 2 CD 8/22.

▲ **Mayer Constr. Co.**, Bear, Del., Separate Contracts $1,000,000, 120-unit RESIDENTIAL DEVELOPMENT, BEAR, DEL.

▲ **Camden Realty Corp.**, 160-16 Jamaica Ave., Jamaica, N. Y., Separate contracts, $1,500,000. RESIDENTIAL DEVELOPMENT, Briar Park, CAMDEN, DEL.

Rice Brothers, Newport, Del., Separate Contracts, $350,000. RESIDENTIAL DEVELOPMENT, Veale Rd., etc., NEWPORT, DEL.

▲ **J. A. Bader & Co.**, 923 Market St., Wilmington, Del., CA, $2,415,577, HIGH SCHOOL and FACULTY HOUSE, 18 and Broom Sts., WILMINGTON, DEL. Salesianum School for Boys, 805 West St., Wilmington, Del. Bids Sept. 5. CD 9/2.

Schnitzer & Son Corp., 107 S. Scott St., Wilmington, Del., Separate Contracts, $350,000. RESIDENTIAL DEVELOPMENT, E. 23 St., etc., WILMINGTON, DEL.

SOUTH

BUILDINGS—BA

† **Va., Yorktown**—OFFICERS' QUARTERS—BA 9/27—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, officers' quarters, one 2 story duplex dwelling and three 1 story dwellings, at U. S. Naval Mine Depot, Contr. NOY 89480, Spec. 47342. Plans deposit $20. CD 12/3/52.

† **Va., Fredericksburg**—RESIDENCE, etc.—BA 9/30—General Services Admin., P. Buildings Service, General Services Bldg., 19th and F Sts. N.W., Wash. 25, D. C., 1 story, frame residence; 65x70 ft. concrete block garage and storage bldg., at Camp A. P. Hill for the Magnetic Observatory (U.S.C. & G.S.) Proj. No. 44-115, Contr. No. GS-R3-B-3959.

HEAVY CONSTRUCTION—LB & CA

WEST VIRGINIA—State Road Comn., Charleston, Zone 5,

W. Va.—**Bennie Snyder**, Box 816, White Sulphur Springs, W. Va., LB, $478,182. c. conc. or hot-laid b. conc. base, bottom and wearing course 3.65 mi. Hartford-Mason Rd., Proj. F-87 (4) 1 Contr. 2, Mason Co.;

W. Va.—**Andersons, Inc. and W. Va. Black Rock Co.**, 2 Spring St., Charleston 2, W. Va., LB, $209,890. b. conc. bottom and wearing courses 5.5 mi. Belleville-Lubeck Rd., Proj. F-306 (20) Wood Co. Bids Aug. 30. CD 8/23.

† **U. S. Eng.**, 308 Customhouse, Wilmington, N. C. cancelled bids to have been opened about Sept. 19, bulk storage warehouse, Pope Air Force Base, ENG-31-075-56-12, FORT BRAGG, N. C. CD 8/9.

† **U. S. Eng.**, 308 Customhouse, Wilmington, N. C. cancelled bids to have been opened about Sept. 24, taxiway, apron paving, ADC area, Seymour Johnson Air Force Base, ENG-31-075-56-8, GOLDSBORO, N. C. CD 8/18.

Fox Constr. Co., Lexington, S. C., LB $237,428, street imprvs. on 45 blocks, COLUMBIA, S. C. City, City Hall, Columbia, S. C. Harry Bellinger, Columbia, S. C., city engr. CD 8/29/52.

▲ **Terry Constr. Co.**, Grove Rd., Greenville, S. C., CA $1,044,484, Div. 2, sewerage sys. imprvs., GREENVILLE, S. C. City, Greenville, S. C. Bids Aug. 2. CD 6/27;
G. E. Moore Co., Greenwood, S. C., CA $385,123, Div. No. 1, (Greenville, S. C.).

L. O. Chapman Co., Charlotte, N. C., CA $202,448, Div. 1 of WW imprvs., PICKENS, S. C. City, Pickens, S. C. Bids Aug. 11. CD 7/27;
Peden Constr. Co., Inc., 52 Mayberry St., Greenville, S. C., CA $43,230, Div. 2, of WW imprvs. (Pickens, S. C.).

▲ **FLORIDA**—Florida State Turnpike Auth., 715 N. Federal Hy., Dania,

FTA—**Cleary Bros. Constr. Co.**, P. O. Box 6815, West Palm Beach, Fla., LB, $140,142. Contract 3.6, Section No. 6, bridges and approx. 1.19 mi., Palm Beach Co.;

FTA—**Union Bldg. & Constr. Corp. & Central Florida Constr. Co.**, 1911 S. Olive Ave., West Palm Beach, Fla., LB $530,169. Contract 4.1, Section No. 4, grading and drainage 6.7 mi. Palm Beach Co.;

FTA—**Cone Bros. Contg. Co.**, P.O. Box 1301, Tampa, Fla., LB, $441,536. Contract 3.3, Section 3, grading and drainage approx. 5.81 mi. Palm Beach Co. Bids Sept. 1. CD 8/26.

▲ **FLORIDA**—State Road Dpt., Tallahassee,

Fla.—**Smith Eng. & Constr. Co.**, Drawer, 1831 Pensacola, Fla., LB $119,237. b. conc. 15.3 mi. State Road 50, State Proj. Job 7506-113, Orange Co.; LB $749,503. base with bit. surf., sand-clay base with b. conc. storm sewers, curb and gutter, sidewalk, 2 concrete, steel .hy. overpass bridges, underpass bridge at Seaboard Air Line Railroad crossing 1.77 mi. State Road No. 20, Proj. U-016-2 (13), UG-016-2 (11) and F-016-2 (12), Jobs 5508-204, 5508-301 and 5508-205, Leon Co.; LB $349,724. grading roadway, base with surf., b. conc. storm sewer, curb, gutter, sidewalk, 1.895 mi. State Road 85, F 041-1 (1), Okaloosa Co.;

Fla.—**White Constr. Co.**, Box 126, Williston, Fla., LB $1,208,938. stab. roadbed, rock base with b. conc. resurf. existing pavement with b. conc., 177 ft. overpass bridge and wid'n. existing overpass bridge over the FEC railroad south of Oak Hill, 180 ft. concrete slab bridge on conc. piling, small drainage structures 13,612 mi. State Road 5, F-003-6 (7), Job 7901-275 Volusia Co.; LB $99,822. stab. base with surf., double 10x6x46 ft. concrete box culvert, 5.544 mi. State Roads Nos. S-239-A, S-239 and S-238-A, Jobs 3954-176, 3960-175 and 3961-175, Union Co.;

Fla.—**Powell Bros., Inc.**, 4500 S. State Rd. No. 7 Dvie, Fort Lauderdale, Fla., LB, $166,268. rock base with bit. surf., b. conc. surf. course, one 136 ft. concrete slab bridge on composite piling, 0.473 mi. State Road 7, Proj. S-12 (3), Job 8610-250, Broward Co.;

Fla.—**Brinson Constr. Co.**, Box 2209, Tampa, Fla., LB, $209,251. stab. roadbed, rock base with b. conc. surf. course, resurf. existing pavement with b. conc., small drainage structures, 2.409 mi. State Road 5, F 003-3 (21), Job N. 9301-204, Palm Beach Co.;

Fla.—**R. H. Wright & Son**, 1050 N. E. 5 Terrace, Fort Lauderdale, Fla., LB, $1,450,550, stab. roadbed, rock base with surf. tr. and b. conc. surf. course, storm sewers, curb, gutter, sidewalk 2.571 mi. State Road 25-A, U-019-1 (2), Job 8725-250 Dade Co.;

Fla.—**L. & P. Corp. and L. E. W. Corp.**, Ocala, Fla., LB, $298,676. rock base, surf. 9.348 mi. State Road S-452, Job 1157-150, Lake Co.;

Fla.—**W. H. Armston Co., Inc.**, Dunedin, Fla., LB, $239,103 concrete sheet piling bulkhead on Sunshine Skyway, State Road, 55, Job 1313-187 and 1517-187 Manatee and Pinellas Counties;

Fla.—**J. W. Conner & Sons, Inc.**, Box 255, Tampa, Fla., LB, $357,278. rock base with surf. b. conc., storm sewers 4.379 mi. State Road 590, in Clearwater, Job 1505-150 Pinellas Co. Bids Aug. 30. CD 8/17.

† **U. S. Eng.**, P. O. Box 4970, Jacksonville, Fla., cancelled bids to have been opened on or about Sept. 23, fire station addn., water potable supply wells and airmen's dining hall (FY-56), Palm Beach Air Force Base, ENG-08-123-56-18, WEST PALM BEACH, FLA. CD 8/23.

▲ **ALABAMA**—State Hy Dpt., Montgomery,

Ala.—**Newell Bros. Constr. Co.**, Hope Hull, Ala., LB $152,457. bit. 9.159 mi. from Havanna east to Valley Church, Hale Co.; LB $199,268. bit. 9.052 mi. Pleasant Grove-Kirk-Gordo Rd., Pickens Co.;

Ala.—**Broadway Brothers**, Scottsboro, Ala., LB $91,457 grading, drainage 3.889 mi. from Tennessee state line south toward Higdon, Jackson Co.;

Ala.—**Burgreen Contg. Co.**, Athens, Ala., LB $285,370 grading, drainage 8.574 mi. from Cullman to West Point, Cullman Co.;

Ala.—**B. F. Williams Constr. Co.**, Ozark, Ala., LB $97,995. base, bit. 10.7 mi. from Nanafalia south to Clarke Co. Line, Marengo Co.;

Ala.—**M. A. Evans Constr. Co.**, Wetumpka, Ala., LB $529,166 bit. tr. 5.071 mi. Woodstock-Bucksville Rd., Bibb and Tuscaloosa Counties;

Ala.—**Floyd S. Milford**, 3732 5 Ave. N., Birmingham, Ala., LB $243,858. grading, drainage 9.933 mi. Ala. 68 southeast of Collinsville via Mt. Vernon to Dogtown De Kalb Co.;

Ala.—**C. E. Robinson**, Wolf Ridge Rd., Whstlr., Mobile, Ala., LB $95,463. bit. 6.132 mi. road from Goodway northeast to Wildfork, Monroe Co.;

Ala.—**J. W. Gwin Jr., Inc.**, Comer Bldg., Birmingham, Ala., LB $155,938. base, bit. 4.903 mi. on part of Birmingport-Ensley Rd. Jefferson Co.;

Ala.—**Hewitt Contg. Co.**, 1509 3 Ave., Columbus, Ga., LB $563,247. bit. 5.44 mi. from Lanett to Osanippa Creek, Chambers Co. Bids Aug. 26. CD 8/17.

ALABAMA—State Hy. Dpt., Montgomery,

Ala.—**Montgomery Constr. Co.**, Bell Bldg., Montgomery, Ala., LB $115,123. underpass and approaches on Ala. 9, at Marion Perry Co. LB $82,118. bridge 0.076 mi. over Bear Creek between Hodges and Belgreen, Franklin Co.;

Ala.—**G. W. Norell Contg. Co., Inc.**, Georgiana, Ala., LB $222,451. overpass and approaches 0.935 mi. on Dothan-Cottonwood Rd., at Dothan, Houston Co.;

Ala.—**W. C. Howton Contg. Co.**, 3904 10 Ave. N., Birmingham, Ala., LB $80,331. overpass 0.059 mi. L. & N. R. R. on Tarrant-Mt. Pionson Rd., Jefferson Co. Bids Aug. 26. CD 8/17.

▲ **Midwest Constructors, Inc.**, Kennedy Bldg., Tulsa, Okla. CA Application filed with FPC. 961 mi. 30 in. gas line from Baton Rouge, La. to Miami, Fla. Total est. $110,382,000. LOUISIANA-ALABAMA-FLORIDA. Houston Gas & Oil Corp., c/o Dale Doty, 4002 Wiprecht St., Houston, Tex. Walco Eng. Co., 2408 E. 4th St., Tulsa, Okla., engr. CD 8/31.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

W. R. Aldrich & Co., Box 1751, Baton Rouge, La., LB, $113,020 (4 bidders), Maneuver Area Bridges, State Proj. 737-00-67, Grant Parish. Bids Aug. 26. CD 8/17.

BUILDINGS—LB & CA

R. R. Richardson & Co., 25 and Newport Ave., Norfolk, Va., CA Est. $450,000. drug PLANT, NORFOLK, VA. The Henry B. Gilpin Co., 129 W. Main St., Norfolk, Va.

Baker & Coombs, 601 E. Brockway, Morgantown, W. Va., CA $500,000, 250x300 ft., block WAREHOUSE, CLARKSBURG, W. VA. Pittsburgh Plate Glass Co., Gateway Center, Pittsburgh, Pa.

Daniel Constr. Co., 429 N. Main St., Greenville, S. C. CA Approx. $344,000. ADMINISTRATION BLDG., GREENVILLE, S. C. Furman University, Greenville, S. C. CD 10/7/52.

Ed. Brockhaus, Box 3325, Q. B. Station, Shreveport, La. LB, $352,000. Negro Elementary SCHOOL, Greenwood-Mooringsport Rd., SHREVEPORT, LA. Caddo Parish School Bd., Shreveport, La. Bids May 24.

John Cassidy Constr. Co., 2303 Elmwood St., Paducah, Ky., LB, $435,891, est. $300,000 (10 bidders) HOSPITAL addns., alterations, MADISONVILLE, KY. Hopkins County Hospital Bd. Comrs., Madisonville, Ky. Bids Aug. 27. CD 8/10.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

† **Wis., Milwaukee**—WAREHOUSE, etc.—BA 9/21—U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill., 80x125 ft., base warehouse and related work, General Mitchell Field, Serial No. ENG-11-032-56-5. CD 3/2/54.

† **Illinois**—ADMINISTRATION, etc.—BA 9/23—U. S. Eng., 475 Merchandise Mart, Chicago, Zone 54, misc. administration and housing facilities, Burnham Park, Chicago, Serial No. ENG-11-032-56-10.

† **O., Dayton**—SOUND TREATMENT STANDS, etc.—BA 10/4—U. S. Eng., 830 W. Broadway, Louisville, Ky., modification Sound Treatment Stands A & B, strengtening Engine Mount Stand B. Bldg. 71A, Wright-Patterson Air Force Base, ENG-15-029-56-289, 56-3. $600,000. CD 9/27/51.

▲ **Illinois**—BA 10/11—U. S. Eng., 475 Merchandise Mart, Chicago, Zone 54, widening the west three miles of Calumet-Sag Channel, Serial No. CIVENG-11-032-56-5. Extended date. CD 8/26.

BUILDINGS—BA

Mich., Livonia—SCHOOL—BA 9/20—Bd. Educ. Livonia School Dist., Lowell Jacobs, secy., 15125 Farmington St., elementary school, Section 34, Hubbard and Maryland Aves. Plans deposit $25. Leinweber, Yamasaki & Assocs., 112 Madison Ave., Detroit 26, Mich., archts. CD 8/12, under LB.

▲ **Mich., Holland**—DORMITORY—BA 9-22—Hope College, Randall C. Bosch, secy., Bd. Trustees, Holland, 3 story, bsmnt., 150-men's dormitory, $1,000,000. Plans deposit $25. Ralph R. Calder, 1212 Kales Bldg., Detroit, Zone 26, archt. CD 9/20/54.

† **Ind., Fort Wayne**—ARMORY, etc.—BA 9/23—U. S. Eng. 600 E. Jefferson Ave., Detroit, Mich., armory, motor vehicle shed, storage, roads, parking areas, etc. CD 4/21.

▲ **Ill., Norridge**—SHOPPING CENTER—Bids Asked—E. A. Juzwik & Co., 10 S. La Salle St., Chicago, Zone 3, shopping center, Irving Park and Forest Preserve Rds $5,000,000. Barancik & Conte, 919 N. Michigan St., Chicago, Zone 11, archts. CD 3/8.

BUILDINGS—SLC

▲ **Ill., Belleville**—HOSPITAL—Hellmuth, Yamasaki & Leinweber and Isadore & Zachary Rosenfeld, archts. 825 Locust St., St. Louis 1, Mo., soon let contract 2 story, bsmnt., 46x243 ft. and 1 story, part bsmnt., 138x157 ft., brick porcelain enameled panel hospital, 4501 North Park Dr., Protestant Hospital Builders Club, Inc., Oliver C. Joseph, pres., 10A W. Washington St., $1,500,000. Charles King, 19A N. Illinois Ave. assoc. archt. John P. Nix, 25 S. Bemiston St., Clayton 5, Mo., structural engr. John D. Falvey, 316 N. 8 St., St. Louis 1, Mo., mech. engr. CD 8/5.

▲ **Mich., Kalamazoo**—DEPARTMENT STORE—Sears, Roebuck & Co., Kalamazoo, soon lets contract for retail department store, $1,250,000. Louis C. Kingscott & Assocs., 511 Monroe St., Kalamazoo, archts. CD 11/23.

HEAVY CONSTRUCTION—LB & CA

▲ **Porter Contg. Co.**, 125 N. Clay St., Hinsdale, Ill. LB $1,148,850, est. $1,000,000 (5 bidders) storm sewers in District L, ELYRIA, O. City, M. J. Lotko, Safety-Service Dir., City Hall, Elyria, O. Bids Aug. 30. CD 8/8.

† **George W. Longfellow Co., Inc.**, 2706 North St., Alton, Ill., LB, $311,756, (7 bidders) levees Clear Creek Drainage and Levee Dist. Proj. Item VI-C, Union and Alexander Counties, ILLINOIS. U. S. Eng., 420 Locust Ave., St. Louis 2, Mo. Bids Aug. 30. CD 7/20.

W. J. Lazynski, Inc., 44445 N. 124 St., Milwaukee, Wis., LB, $553,277, Bradley Road main sanitary sewer, MILWAUKEE, WIS. Metropolitan Sewerage Comn. of Milwaukee Co., Jones Island, Milwaukee, Wis. Bids Aug. 29. CD 8/10.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Mich.—**Ann Arbor Constr. Co.**, 221 Felch St., Ann Arbor, Mich., LB $82,298, est. $100,000, b. conc. 2.578 mi. US-112, M-81-15 C3-R, Washtenaw Co.; LB $194,009, est. $280,000, bit. binder widn. and b. conc. surf. 4.85 mi. US 10. M-63-30 C9-RN, Oakland Co.;

Mich.—**Canonie Excavating Co.**, South Haven, Mich., LB $718,744, est. $730,000, stabil. aggregate surf. 13.117 mi. M-57, SS 29-24 C3-R SS 29-25 C8-R (S-211 2), Gratiot Co.;

Mich.—**Cooke Contg. Co.**, 1116 Penobscot Bldg., Detroit, Mich., LB $491,925, est. $550,000, b. conc. surf. 8.5 mi. No. 10-Ramp M 82-74, C12-UO FI 82-94 C4-TO (FI 395-47) FI 82-96, C10-RO (FI 395-47), Wayne Co.;

Mich.—**L. A. Davidson Co.**, 213 E. St. Joseph St., Lansing 15, Mich., LB $254,867, est. $220,000, grading, drainage, paving John C. Lodge Expressway service roads, UI 82-128 C21 (UI 404 101), Wayne Co.;

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AMERICAN STEEL DREDGE CO. INC.
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Mich.—Detroit Asphalt Paving Co., 432 Lafayette Bldg., Detroit, Mich., LB $83,949, est. $90,000, b. conc. 3.5 mi. US 24 and US 25, M 82-22 C4-U M 82-22, C5-R, Wayne Co.;

Mich.—East Shore Asphalt Co., P. O. Box 31, Alpena, Mich., LB $153,469, est. $170,000, bit. aggregate 8.495 mi. M-68, F71-4 C6-UO (F 296 4) M71-17 C9-79, Presque Isle Co.;

Mich.—General Paving Constr. Co., 235 Union Ave. S. E. Grand Rapids, Mich., LB $233,673, est. $240,000, stabil. aggregate widen. and b. conc. surf. 12.57 mi. US-10. M53-18 C5-R, M 32-2 C3-R, Mason and Lake Counties;

Mich.—Carl Goodwin & Sons, 500 Delano St., Allegan, Mich., LB $958,200, est. $980,000, c. conc. 4.29 mi. US-31, F 70-41, C5-RN F 70-41 C6-UN (F-155-26), Ottawa Co.;

Mich.—Johnson-Greene Co., 416 E. Huron St., Ann Arbor, Mich., LB $323,607, est. $320,000, stabil. surf., b. conc. surf. 4.615 mi. parts of US-27, F 69-2 C-RO (F 172 17) Part 2; F69-2A CIO-RO (F 172 17) Part 1, M 69-2, C 11-RO F 16-9, C4-RO (F 172 16) Part 2; F 16-22 C2-RO (F 172-16) Part 1, Otsego and Cheboygan Counties;

Mich.—Paul C. Miller, 10300 Sparta Ave., Sparta, Mich., LB $200,191, est. $200,000, binder, widn., b. conc. 6.052 mi. M-15, F 70-10 C4-RO (F 239 10), Tuscola Co.;

Mich.—Rieth-Riley Constr. Co., 837 Emmett St., Battle Creek, Mich., LB $159,851, est. $160,000, b. conc. surf. 4.084 mi. M-79 US-12 and M-96, (13-9) C5-U M 13-9 C6-R, M 13-27, C16-RC, F13-39, C4-UO (F 254 26), Calhoun Co.;

Mich.—West Shore Constr. Co., Muskegon, Mich., LB $78,562, est. $100,000, b. conc. surf. 3.41 mi. US-31, US-16, M-46, M 61-2, C2-U, M 61-6, C2-U, M 61-7, C2-U, M61-42, C1-U, M 79-7, C2-U, M70-39, C3-U, Muskegon Co.;

Mich.—Wright Constr. Co., P. O. Box 35, N. Lansing Sta., Lansing, Mich., LB $249,811, est. $250,000, b. conc. wearing course 4.471 mi. US 10, M-13, M 25-25 C9-R, F 25-35, C11-U (F 97-15), M 25-37, C2-U, Genesee Co.; LB $76,926, est. $90,000, b. conc. 1.355 mi. M-78 and US 27. M 33-86 C1-UO, Ingham Co. Bids Aug. 24. CD 8/17. 8/11.

MICHIGAN—State Hy. Dpt., Lansing,

Mich.—Payne & Dolan of Wis., Inc., 5831 W. Rawson St., Milwaukee, Wis., LB $328,129, est. $330,000, (2 bidders) binder widn., b. conc. grading, drainage, b. conc. wearing surf. 10.764 mi. US-41 and M-95, M 52-13, C5-R, M 52-13, 06-R, M 52-13, C7-R, M 52-19, C4-R, Marquette Co.;

Mich.—Thornton Constr. Co., Hancock, Mich., LB $112,265, est. $120,000, (5 bidders), c. conc. 0.732 mi. US-41, F 31-19, C8-R (F-175 21) Houghton Co. Bids Aug. 23. CD 8/17 and 8/11.

MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Mich.—E. C. Nolan Co., 8121 Warren St., Center Line, Mich., LB $126,670, est. $130,000, rein.-con., steel bridge, 400 ft. approach grading, M-59 over Clinton River, F B1 of 30-13-11, C1-U (F-216 11), Macomb Co.;

Mich.—Walter Toebe & Co., P. O. Box 761, Lansing, Mich. LB $189,622, est. $220,000, rein.-con., steel bridge, US-16 over Farmington Rd., IN B2 of 63-6-4, C1-UO (IN 229 8), Oakland Co.; LB $226,241, est. $250,000, railroad separation structure, Detroit-Toledo Expressway over Consumer's Power Co. spur track, BM XI of 58-5-26 C1-RO, Monroe Co. Bids Aug. 24. CD 8/17, and 8/11.

Chissus Constr. Co., 870 Bowers St., Birmingham, Mich. CA, $110,000. ice skating rink, Eton Park, BIRMINGHAM, MICH. City, Donald C. Egbert, mgr., Birmingham, Mich. Bids Aug. 10. CD 7/28.

Drainage Contractors, Inc., 22148 Michigan Ave., Dearborn, Mich., CA, $356,680, sanitary sewer constr. YPSILANTI, MICH. Ypsilanti Twp., Don E. Ehle, clk., 1165 Ecorse Rd., Ypsilanti, Mich. Bids July 30. CD 7/7.

BUILDINGS—LB & CA

Weinstein Constr. Co., 573 E. Tallmadge St., Akron, O. CA $924,000. 5 story HOSPITAL addn. to present west wing, incl. one surgical floor, AKRON, O. Children's Hospital, Roger Sherman, administrator, W. Bowery and Buchtel Sts., Akron, O. CD 10/21.

▲ **Arcose Co.,** 4997 Glenway Ave., Cincinnati, O. Own Forces. $2,700,000. 150 one story, approx. 1,300 sq. ft., bsmnt. HOMES in Delhi Hills, CINCINNATI, O. Joseph Allen, 4638 Glenway Ave., Cincinnati, O., engr. CD 2/16/55.

Roediger Constr. Co., 1729 Superior Ave., Cleveland 14, O., LB $806,000 (4 bidders) masonry DORMITORY, CLEVELAND, O. Case Institute of Technology, 10900 Euclid Ave., Cleveland, O. Bids Aug. 30. CD 8/5.

▲ **Miami Valley Constr. Co., Albert L. Miller, pres.,** c/o Joseph M. Jenefsky, Third Natl. Bldg., Dayton, O. Owner Builds. $2,000,000. 5 story OFFICE, with 100-car capacity indoor parking, 325-345 W. First St., DAYTON, O.

J & E Warm Co., 2335 Florence Ave., Cincinnati, O. CA $500,000. design and construct 40,000 sq. ft. mfg. PLANT, OFFICES on west side Reading Rd., near Glendale-Milford Rd., EVENDALE, O. Aristo-Craft, Inc., 2644 Colerain Ave., Cincinnati, O. Awarded Aug. 29.

Knowlton Constr. Co., 106 N. Main St., Bellefontaine, O. CA $396,300, general constr. HIGH SCHOOL, intersection Ohio Rte. 308 and Linson Pike, Paint Creek Twp., LONDON, O. Madison South School Dist., London, O.

Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., CA, $491,300. generators for POWER PLANT addn., WASHINGTON, IND. Grand total $859,910. City, City Hall, Washington, Ind. CD 11/9;

General Electric Co., River Rd., Schenectady, N. Y. CA, $229,700, sub-station equipment (Washington, Ind.);

Worthington Corp., 426 Worthington Ave., Harrison, N. J., CA, $138,900. condensors (Washington, Ind.)

▲ **Haglund & Ames,** 123 Greenwood St., Waukegan 1, Ill., CA, $2,000,000. SHOPPING CENTER, WAUKEGAN, ILL. Russell H. Edwards Co., c/o Jensen & Halsted, archts., 39 S. La Salle St., Chicago 3, Ill. Awarded Aug. 30. CD 2/18/54.

Walter L. Couse & Co., 12740 Lyndon St., Detroit, Mich., CA, $200,000. WAREHOUSE addns., alterations, West Warren, DEARBORN, MICH. People's Outfitting Co., 150 Michigan Ave., Dearborn, Mich. Bids July 13. CD 7/12.

▲ **Barton-Malow Co.,** 2631 Woodward Ave., Detroit, Mich., CA, $1,400,000. general contract 200,000 sq. ft. PLANT, 14-Mile and Grossbeck, DETROIT, MICH. The Cross Co., 4250 Bellvue St., Detroit, Mich. Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, Mich., archt. CD 8/22, under CA.

▲ **Schostak Brothers & Co.,** 3415 Cadillac Tower, Detroit, Mich. Owner Builds. $5,000,000. Eastwood SHOPPING CENTER, incl. 40 stores on 27 acres, Gratiot and Eight Mile Rd., EAST DETROIT, MICH. CD 11/30.

Vollmer Constr. Co., 222 N. Bates St., Saginaw, Mich. CA $577,113. POWER PLANT, Mount Pleasant State Home & Training School, MOUNT PLEASANT, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. CD 8/25, under LB.

Bundy Constr. Co., 1509 Telegraph Rd. S., Pontiac, Mich., CA, $370,000, Linda Vista Elementary SCHOOL, southeast of Perry St., PONTIAC, MICH. Bd. Educ., Lola B. King, secy., Pontiac, Mich. Bids Aug. 10. CD 8/3.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Texas**—BA 9/27—Soil Conservation Service, 1st. Natl. Bank Bldg., Temple (18-56) floodwater retarding structures with earthfill embankments, Site 7, Green Creek, approx. 2½ mi. east of Dublin, Erath Co.

† **Okla., Fort Sill**—HANGAR—BA 9/30—U. S. Eng., Box 61, Tulsa Zone 2, aircraft hangar, ENG-34-066-56-9. $500,000. CD 8/19, under Public Buildings.

BUILDINGS—BA

▲ **Tex., El Paso**—PLANT—Bids Asked—Northrup Aircraft, Inc., 1001 E. Broadway, Hawthorne, Calif., and Radio Plane Co., El Paso, aircraft mfg. plant. $1,000,000.

HEAVY CONSTRUCTION—LB & CA

Orfel and Mariana & Sons, Inc., 1146 Homer St., St. Paul, Minn., LB, $1,206,362 (11 bidders) trunk and lateral sewerage sys., Projects A thru K, CRYSTAL, MINN. Village, K. Evans, clk., Crystal, Minn. Bids Aug. 30. CD 8/10.

Milton Rue Co. & Northern Imprvt. Co., Bismarck, N. D. CA $299,907, water plant addns., BISMARCK, N. D. City, City Hall, Bismarck, N. D. L. W. Burdick, Grand Forks, N. D. engr. Bids Aug. 16.

▲ **KANSAS**—Kansas Turnpike Auth., P. O. Box 681, Topeka,

J. A. Tobin Constr. Co., 3701 Rainbow Blvd., Kansas City, Kan., CA $1,015,524. c. conc. 5.06 mi. on crossroads, Proj. 10-40, 41 and 42-P (1), Wyandotte Co. Bids Aug. 26. CD 9/1, under LB.

Douglas Constr. Co., 510 E. 15 St., Topeka, Kan. LB $332,659, Paving Proj. 1955 No. 1, near TOPEKA, KAN. Shawnee Co., Court House, Topeka, Kan. Bids Aug. 15.

OKLAHOMA—Oklahoma Turnpike Auth., 321 N.E. 24 St. Oklahoma City,

W. D. Jeffrey Constr. Co., 4201 Townsend Ave., Fort Smith Ark., CA $586,242, est. $618,186, grade, drainage 5.681 mi. on turnpike at Claremore, Rogers Co. Bids Aug. 30, awarded Aug. 31. CD 8/23.

▲ **OKLAHOMA**—Oklahoma Turnpike Auth., 321 N.E. 24 St., Oklahoma City,

OTA—Hunter Constr. Co., Ada, Okla., LB $455,781, est. $433,821, grade, drainage 3.099 mi. turnpike west from the Missouri line, Miami, Ottawa Co.;

OTA—M. E. Gilliss, Monett, Mo., CA $849,480, est. $854,094, grade, drainage 7.081 mi. turnpike east of Miami, Ottawa Co. DeLeuw Cather & Co., 321 N.E. 24 St., Oklahoma City, engr. Awarded Aug. 31. CD 3/23/54.

OKLAHOMA—Oklahoma Turnpike Auth., 321 N.E. 24 St., Oklahoma City,

Pool Constr. Co., Shawnee, Okla., LB $591,465, est. $503,853, grade, drainage 4.944 mi. turnpike east from Tulsa Terminal, Catoosa, Rogers Co. Bids Aug. 30. CD 8/23.

OKLAHOMA—Oklahoma Turnpike Auth., 321 N.E. 24 St., Oklahoma City,

Clark-Farrell Co., Brinkley, Ark., LB $675,188, est. $714,207, grade, drainage 4.643 mi. turnpike, near Chelsea, Mayes Co. DeLeuw Cather & Co., 321 N.E. 24 St., Oklahoma City, engr. CD 3/23/54.

▲ **OKLAHOMA**—Oklahoma Turnpike Auth., 321 N.E. 24 St., Oklahoma City,

OTA—Brewer & McMichael, Inc., Holdenville, Okla., LB $125,273, est. $127,760, Highway Grade Separation Structure No. 61.93, Big Cabin, Mayes Co.; LB $391,974, est. $406,330, Highway Grade Separation No. 51.47, Big Cabin, Mayes Co.; LB $120,973, est. $120,750, Highway Grade Separation Structure No. 54.75, Big Cabin, Mayes Co.; LB $176,485, est. $179,446, Highway Grade Separation Structure No. 59.12, at Big Cabin, Mayes Co.; LB $118,748, est. $122,600, Highway Grade Separation Structure No. 60.97, at Big Cabin, Mayes Co.;

OTA—Suddreth Constr. Co., Fidelity Bank Bldg., Oklahoma City 2, Okla., LB $132,610, est. $140,117, Highway Grade Separation Structure No. 66.70, at Big Cabin, Mayes Co.; LB $132,377, est. $137,846, Highway Grade Separation Structure No. 63.18, at Big Cabin, Mayes Co.; LB $166,380, est. $165,310, Highway Grade Separation Structure No. 64.90, at Big Cabin, Mayes Co.; LB $128,740, est. $131,390, Highway Grade Separation Structure No. 64.25, at Big Cabin, Mayes Co. Bids Aug. 30. CD. 8/23.

TEXAS—State Hy. Comn., Austin,

Harry Newton, Inc., Graham Land Office Bldg., Graham, Tex., CA $851,675, grading, bridges, flexible base and b. conc. 3.965 mi. Hy. US 59, Proj. F. 543 (15), Jackson Co. Bids Aug. 17, awarded Aug. 29. CD 8/23 under LB.

† **C. L. Browning, Jr.,** Box 5008, Beacon Hill Station, San Antonio, Tex., CA $854,227. ordnance storage area facilities, Abilene Air Force Base, ENG-41-443-56-4, ABILENE, TEX. U. S. Eng., Box 1600, Fort Worth, Tex. Bids Aug. 16. CD 8/24, under LB.

Ector Co., Odessa, Tex. Own Forces. $150,000. road work, grading, surf. ODESSA, TEX. CD 12/20.

BUILDINGS—LB & CA

G. W. Madsen Constr. Co., 4916 Sunnyslope Rd., Minneapolis, Minn., LB, $758,400 (8 bidders) general contract GRADE SCHOOL, BLOOMINGTON (P.O. Minneapolis) MINN. Bd. Educ., A. Moir, clk., 10025 Penn Ave. S., Minneapolis, Minn. Bids Aug. 30. CD 8/2.

Jensen Constr. Co., 7700 Wentworth Ave., Minneapolis, Minn., LB, $379,800 (4 bidders) Rice Memorial HOSPITAL addn. and remodeling, WILLMAR, MINN. City, E. H. Brooren, clk., Willmar, Minn. Bids Aug. 24. CD 7/28.

▲ **Joseph H. Vatterott Realty & Bldg. Co.,** 1500 S. Florissant Rd., Florissant, Mo. Owner Builds, $2,500,000, 197 RESIDENCES, GARAGES, etc., in New Duchesne Hills Subdivision, Derhake Rd., east of Washington Ave., FLORISSANT, MO.

C. M. Redman & Assocs., Baken Park, Rapid City, S. D. Owner Builds. $500,000. SUPERMARKET, RAPID CITY, S. D.

J. E. Dunn Constr. Co., 929 Holmes St., Kansas City, Mo., LB $582,000, general constr. CLUBHOUSE and SWIMMING POOL, near KANSAS CITY, KAN. Mission Hills Country Club, 5301 State Line Rd., RFD from Kansas City, Kan. Bids Aug. 11. CD 8/10.

Meadowbrook Estates (J. A. Peterson Co.), 216 W. 17 St., Kansas City, Mo. Owner Builds. $700,000. 58 DWELLINGS, 62 and Antioch Road, RFD from Kansas City, KANSAS CITY NORTH, MO. Northern & Conrad, 4149 Penn St., Kansas City, Mo., archts.

▲ **Cadenhead & Rosser,** 4776 Trail Lake Dr., Fort Worth, Tex., CA $1,566,600, two HIGH SCHOOLS, BIRDVILLE, TEX. Birdville Independent School Dist., Birdville, Tex. Bids Aug. 30. CD 8/4.

Southwest National Builders, c/o J. C. Culpepper, Bryan, Tex. Own Forces. $345,000. 33 DWELLINGS, BRYAN, TEX. CD 1/19.

Lewis C. Kordell, 1018 Waterford St., Dallas, Tex. CA $445,000, Group No. 7, 50 DWELLINGS; CA $475,000, Group No. 9, 55 DWELLINGS, BRYAN, TEX. Southwest National Builders, c/o J. C. Culpepper, Bryan, Tex. CD 1/19.

Tom D. Henderson & C. Hudson, El Campo, Tex. Own Forces. $356,650, 30 DWELLINGS; $345,000, 26 DWELLINGS, EL CAMPO, TEX. CD 6/29.

Howard Housing Corp., 9104 Main St., Houston, Tex. Own Forces. $360,000. 18 DWELLINGS, near HOUSTON, TEX. CD 8/3.

▲ **Lewis O. Tyra & Assocs.,** 5519 Lawndale St., Houston, Tex. Own Forces. $460,000. Unit 6, 40 DWELLINGS; $355,000, Unit 7, 26 DWELLINGS; $345,000, Unit 8, 24 DWELLINGS, HOUSTON, TEX. Grand total $1,160,000. CD 2/8.

W. R. King Building Corp., 4027 Underwood St., Houston, Tex., CA $351,150, Unit 14, 36 DWELLINGS, HOUSTON, TEX. CD 5/31.

W. R. King Building Corp., 4027 Underwood St., Houston, Tex., CA $359,700, Unit 13, 33 DWELLINGS, HOUSTON, TEX. Buck King & Assocs., 4027 Underwood St., Houston, Tex. CD 4/8.

Howard Housing Corp., 9104 Main St., Houston, Tex. Own Forces. $367,750, Unit 7, 19 DWELLINGS, near HOUSTON, TEX. CD 2/16.

▲ **Brown-Daniels Constr. Co.,** 10604 Harry Hines Blvd., Dallas, Tex., CA $376,600, 40 DWELLINGS; CA $385,550, 45 DWELLINGS; CA $361,000, 29 DWELLINGS, IRVING, TEX. Grand total $1,123,150. R. F. Daniels & Assocs., 10604 Harry Hines Blvd., Dallas, Tex. CD 6/3.

Bel-Aire Housing Corp., c/o Lloyd A. Denton, Milam Bldg., San Antonio, Tex. Own Forces. $378,000, 22 DWELLINGS; $388,190, 26 DWELLINGS, SAN ANTONIO, TEX. CD 6/2.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **CALIFORNIA**—BA 9/27—Division of San Francisco Bay Toll Crossings, 2054 University Ave., Berkeley,

Contra Costa Co.—paving lower deck of Richmond-San Rafael Bridge, installing scaffold rails and hangars, drainage troughs, alignment of curbs and railing, touch-up painting, Richmond. $1,500,000. CD 11/4.

HEAVY CONSTRUCTION—LB & CA

Midburn Constr. Co., 1625 W. 3 St., La Verne, Calif., CA, **$166,127,** rein.-con. bridge and storm drain, pump station Atherton St. and Los Cerritos Channel, LONG BEACH, CALIF. City, City Hall, Long Beach, Calif. Bids Aug. 15, awarded Aug. 25.

Johnson Western Co., State Highway, Coronado, Calif., LB, **$558,331,** Moore Street Storm Drain, SAN DIEGO, CALIF. City, 1600 Pacific Hy., San Diego 1, Calif. Bids Aug. 24. CD 8/1.

BUILDINGS—LB & CA

▲ **E. C. Swanson,** 2341 E. 55 St., Seattle, Wash., CA, Est. **$3,000,000.** 2 story, rein.-con. department STORE in University Village shopping center, 25 Ave. N.E. and E. 45 St., SEATTLE, WASH. Rhodes of Seattle, 2 Ave. and Union St., Seattle 1, Wash. CD 6/30/54.

Gasparo Constr. Co., 6629 Beck St., Oakland, Calif., LB, **$371,582** (5 bidders), combined bid for Proctor Elementary SCHOOL and Van Noy Elementary SCHOOL, CASTRO VALLEY, CALIF. Castro Valley Elementary School Dist., 6600 Christensen Lane, Castro Valley, Calif. Corlett & Spackman, 347 Clay St., San Francisco, archts. CD 3/4.

Brookvale, Inc., 390 Thornton Ave., Centerville, Calif., Owner Builds, **$399,500.** 47 HOME subdivision, CENTERVILLE, CALIF.

Grant Union High School District, Grand Ave., Del Paso Heights, Calif., rejected bids (2nd unit) Don Julio Junior High SCHOOL, North Highlands, DEL PASO HEIGHTS, CALIF. LB **$875,766.** Will re-advertise in October. CD 8/9, under LB.

Youratin Constr. Co., 333 Kearny St., San Francisco, Calif., Owner Builds, **$600,000,** APARTMENT, Waverly St. near Willor Rd., MENLO PARK, CALIF.

CANADA

HEAVY CONSTRUCTION—BA

N. B. Chatham—HOUSING—BA 9/20—Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S. 107 housing units, with services, St. Margaret's Air Force Base, $800,000. Plans deposit $100.

BUILDINGS—BA

N. B. Fredericton—BARRACKS BLOCK—BA 9/22—Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. 180 man barracks block at Canadian Army's Camp Gagetown, $350,000. Plans deposit $100. H. Ross Wiggs, 4350 Sherbrooke St. W., Montreal, Que., archt. Wiggs, Walford, Frost & Lindsay, 4350 Sherbrooke St. W., Montreal, Que., engrs.

BUILDINGS—SLC

Que., St. Eustache—CONVENT—Les Soeurs Benedictines du Canada, 3473 Park Ave., Montreal, soon lets contract convent addn. to "Ababaye St. Marie" near here, $500,000. Edgar Courchesne, 3057 Lacombe Ave., Montreal, archt. Deslauriers & Mercier, 1396 St. Catherine St. W., Montreal, Que., engrs. CD 9/10/54, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ **Trynor Constr. Co. Ltd.,** 68 Argyle St., Halifax, N. S., LB **$2,104,762.** new runway and connecting taxiways, DARTMOUTH, N. S. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Aug. 19.

▲ **Foundation Co. of Ontario, Ltd.,** 1220 Bay St., Toronto, Ont., CA **$3,193,735** filtration plant extension, doubling present 1,000 gal. per day capacity with addnl. filter, settling tanks, mixing tanks, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Aug. 15, awarded Aug. 30. CD 8/23, under LB.

▲ **Therrien Constr. Co Ltd.,** 3505 Eglinton Ave., W. Toronto, Ont. and **McNamara Constr. Co. Ltd.,** 42 Industrial St., Toronto, Ont. CA **$1,250,000.** clearing, grading, culverts, trestles and sub-structures of bridges on first 66-miles of St. Felicien to Chibougiche Lake branch line in northern QUEBEC. Canadian National Rys., R. B. Steele, ch. engr., 436 Union Station, Toronto, Ont. Bids Aug. 10, awarded Aug. 29. CD 7/20.

Canadian Westinghouse Co., Ltd., Dominion Square Bldg., Montreal, Que., LB **$384,000** generators for dam and powerhouse for city of Bromptonville, SHERBROOKE, QUE. City, City Hall, Sherbrooke, Que., Bids Aug. 15. CD 7/21;
MacKinnon Structural Steel Co., Ltd., 575 Des Forges Rd., Sherbrooke, Que., LB **$246,440** gates and cranes, (Sherbrooke, Que.);
Dominion Eng. Co., Ltd., Lachine, Que., LB **$222,200** turbines (Sherbrooke, Que.).

BUILDINGS—LB & CA

W. C. Wells Constr. Ltd., 10519 115 St., Edmonton, Alta., CA **$508,557,** (8 bidders) NURSES HOME, University Hospital, EDMONTON, ALTA. Dpt. P. Wks., Parliament Bldgs., Edmonton, Alta. Awarded Aug. 26. CD 8/5.

▲ **Pigott Constr. Co., Ltd.,** Pigott Bldg., Hamilton, Ont., CA **$3,360,500.** ADMINISTRATION BLDG., 2 INFIRMARIES and ACTIVE TREATMENT BLDGS. one connecting passage at Rockwood Hospital, KINGSTON, ONT. Dpt. P. Wks., Parliament Bldg., Toronto, Ont. Bids July 20, awarded Aug. 26. CD 6/10.

Austin Co. of Canada Ltd., Canada Bldg., Windsor, Ont., CA **$700,000,** 43,000 sq. ft., brick, steel PLANT, ST. THOMAS, ONT. Canadian Clark Ltd., subsidiary of Clark Equipment Co., 300 Second Ave., Buchanan, Mich., U. S. A. Austin Co. of Canada Ltd., Canada Bldg., Windsor, Ont., engr.

▲ **Pigott Constr. Co., Ltd.,** 1250 Bay St., Toronto, Ont., CA **$1,000,000.** HOSPITAL, Shuter and Victoria

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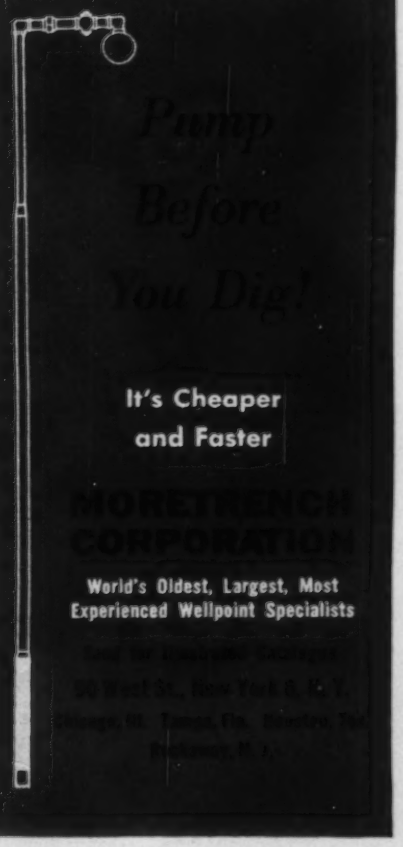


Sts., TORONTO, ONT. St. Michael's Hospital, 30 Bond St., Toronto, Ont. Somerville, McMurrich & Oxley, 1104 Bay St., Toronto, Ont., archts.

Joseph Vallee, Roberval, Que., CA $432,500 (5 bidders) 4 story, 50x210 ft., rein.-con. brick CONVENT, ROBERVAL, QUE. Les Soeurs Ursulines, Roberval, Que. and Commission Scolaire de Roberval, Roberval, Que. Bids Aug. 2, awarded Aug. 25. CD 8/1.

Stanislas Grondin, 218 10 Ave. S., Sherbrooke Que., CA Est. $500,000 (6 bidders) 4 story, bsmnt., rein.-con., brick CLASSICAL COLLEGE, SHERBROOKE, QUE. College du Sacre Coeur, Terrill St. and Parc Ave., Sherbrooke, Que. Awarded Aug. 29. CD 9/1.

▲ **Lucien Richard,** 141 Bonaventure St., Three Rivers, Que., and **Robert Cloutier,** Ste. Thecle, Que., CA, $1,200,000. 142 standard HOUSING UNITS, VAL-CARTIER, QUE. Central Mortgage & Housing Corp., 940 Cote de Liesse Rd., Town of Mount Royal, Montreal 16, Que. Bids July 26, awarded Aug. 25. CD 7/12.

▲ **Smith Bros. & Wilson Ltd.,** 104 Dominion Bank Bldg., Regina, Sask., CA $1,000,000. 150-room, 5 story, T-shaped, 100x120 ft., structural steel, brick facing and limestone HOTEL, REGINA, SASK. Traders Agency Ltd., c/o contractor. Izumi & Arnott & Sugiyama, C 11-1818 Scarth St., Regina, engrs.-archts.

LATIN AMERICA

BUILDINGS—BA

Nicaragua—STORAGE BLDG.—Bids Asked After 9/16—Kuljian Corp., engrs., 1200 N. Broad St., Phila. 21, Pa., U. S. A., foundations for and the erection of prefabricated storage bldg. at the thermo-electric plant site at Managua for Empresa Nacional de Luz y Fuerza, Managua, Nicaragua. CD 2/26/45.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Walnut**—Walnut Valley Water Dist., 1539 Brea Canyon Cutoff Rd., $1,570,000 bond election Sept. 28, Walnut-Pomona-Rowland area transmission main to connect to Metropolitan Water District. Perliter & Soring, 448 S. Hill St., Los Angeles, consult. engrs. CD 1/13/54.

▲ **Wis., Green Bay**—City, City Hall, water filter plant. $1,500,000. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, Ill., consult. engrs. CD 6/18/52.

▲ **Que., Three Rivers**—City, City Hall, new filtration plant, new reservoir, to raise capacity of present pumping station to 3 mgpd. $2,600,000. P. E. Dufreane, c/o owner, city engr. Lalonde, Girouard & Letendre, 7370 St. Hubert St., Montreal, consult. engrs. CD 7/20/54.

SEWERS, WASTE DISPOSAL

▲ **Mich., Warren**—Warren Twp., Warren, voted $15,000,000 bonds, sewers. CD 2/8.

▲ **Minn., Golden Valley (Minneapolis, P.O.)**—Village, K. Rahn, clk., sanitary trunk sewer part of village generally south of Olson Memorial Hy. and serve also an industrial district. $1,053,743. N. Ogard, village engr.

Okla., Muskogee—City, sewage disposal plant. $500,000. Benham Engr. Co., 315 N. E. 23 St., Oklahoma City, consult. engr.

▲ **Tex., Houston**—The Westbury Addition, Sec. 3, Belfort and Chimney Rock Sts., storm sewers, $500,000; sanitary sewers, $600,000, 464-acre tract for 1,214 dwellings, outside city limits.

BRIDGES

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,
Ottawa Co.—nine span bridge, three 50-ft., two 65 ft., two 100 ft., one 60 ft. and 210 ft. bascule span deck, incl. two 40 ft. roadways, 5 ft. sidewalk each side, total length 750 ft., over Grand River, incl. 250 ft. railroad interchange, Carlos Weber, ch. engr.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,
Saginaw Co.—630 ft. concrete, steel span over Saginaw River on relocation of M-46 to by-pass west side business section, incl. two 31 ft. roads and 4 ft. divider two 5 ft. sidewalks $1,100,000. Carlos Weber, ch. engr.

▲ **NEW JERSEY and PENNSYLVANIA**—Delaware River Bridge Auth., Bridge Plaza, Camden, N. J.
high level, 7-lane vehicular bridge over the Delaware River between N. E. Phila., Pa. and New Jersey. $44,990,330-$53,403,700. Modjeski & Masters, State Street Bldg., Harrisburg, Pa., and Ammann & Whitney, 76 9 Ave., New York, N. Y., consult. engrs., making preliminary report. CD 3/23/51.

STREETS AND ROADS

▲ **Calif., San Francisco**—City, City Hall, 2nd Section, Market-Portola Street Imprvt., Incl. widening and straightening 0.8 mi. Market St. and 600 ft. bridge. $1,200,000. CD 11/13/47.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
St. Lawrence Co.—arterial highway at Ogdensburg. $1,830,000. John Clarkeson, 93 State St., Albany, consult. engr. CD 11/15.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Sullivan Co.—6 mi. Liberty by-pass and 7 mi. Fair Oaks-Bloomingburg Sect. of Rte. 17. $15,000,000.

▲ **Tex., Houston**—The Westbury Addition, Sec. 3, Belfort and Chimney Rock Sts., 20 mi. asph. and concrete street pavement 464-acre tract for 1,214 dwellings, outside city limits. $1,115,000.

Tex., Monahans—Ward Co., Court House, constr. farm to market roads at Sand Hills State Park. $500,000.

▲ **Tex., Orange**—Orange Co., Court House, road and bridge imprvs. Precinct No. 1, $1,250,000; Precinct No. 2, $1,250,000; Precinct No. 3, $1,250,000; Precinct No. 4, $1,250,000.

EARTHWORK, WATERWAYS

▲ **Tex., Newton**—Newton County Water Supply Dist., Newton, voted bonds Aug. 27, constr. dam across Cow Creek. $2,500,000. CD 8/5.

† **Virginia**—U. S. Eng., 1st and Douglas Sts. N. W., Wash. 25, D. C., dredging channel Totuskey Creek, $100,000-$500,000; dredging exten. to turning basin, Urbana Creek, under $100,000; dredging channel, Whiting's Creek, under $100,000.

AIRPORTS

▲† **Ariz., Phoenix**—DORMITORY, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., plans by John Sing Tang, Arizona Title Bldg., Phoenix, airmen's dormitory, $985,000; base ammo. shop, $175,000; dining hall, $250,000 Luke Air Force Base.

▲† **Calif., Sacramento**—COMMUNICATIONS and NAVIGATIONAL AIDS, etc.—U. S. Eng., Wright Bldg., communications and navigational aids, troop housing, mess bldgs. and personnel facilities, Mather Air Force Base, $1,516,000.

▲† **Del., Dover**—AIRFIELD PAVING, etc.—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., airfield paving and lighting, fuel dispensing aircraft maintenance, personnel administrative and family housing, Dover Air Force Base, $7,073,000.

Del., Wilmington—AIRPORT—U. S. Eng., 2653 Abbottsford Rd., Phila., Pa., airfield paving, lighting and storage facilities, New Castle County Airport, $504,000.

▲† **Ga., Savannah**—PAVING, etc.—U. S. Eng., 200 E. St. Julian St., paving, lighting, operational aircraft maintenance, training, medical and personnel facilities, utilities, Hunter Air Force Base $4,115,000.

▲† **Ill., Scott Air Force Base**—DORMITORIES, etc.—Dpt. Army, Commanding Officer, Scott Air Force Base, Belleville, 3 dormitories for airmen, mess hall, etc. Scott Air Force Base. $1,247,000. CD 6/29/51.

▲ **Kan., Salina**—HOUSING—Commanding Officer, Smoky Hill Air Force Base, Topeka, plans by J. R. Cushing, 2005½ Gage St., Topeka, air base housing. $7,222,500. CD 5/19/52.

† **Md., Andrews Air Force Base**—BOILER PLANT—U. S. Eng., 1 and Douglas Sts. N.W., Wash. 25, D. C., boiler plant addn. $100,000-$500,000. CD 8/9/54.

† **N. J., Lakehurst**—JET SLED FACILITY—Dpt. Navy, Phila. Naval Base, Phila., Pa., jet sled facility, $650,000. Louis Berger & Assocs., 88 Main St., East Orange, N. J., consult. engrs. CD 7/30/52.

▲† **N. J., Wrightstown**—AIRFIELD PAVING, etc.—U. S. Eng., 2635 Abbotsford Ave., Phila., Pa., airfield paving and lighting, operation storage and housing facilities, McGuire Air Force Base, $5,546,000.

▲† **N. J., Wrightstown**—APRON PARKING, etc.—U. S. Eng., 2635 Abbottsford Ave., Phila., Pa. apron parking, $5,000,000; shelter access apron $500,000; squadron operations bldg., base storage shed and base operations bldg., $500,000; taxiway airfield lighting, $100,000, all at McGuire Air Force Base. Porter, Urquhart & Beavin, 415 Frelinghuysen Ave., Newark, N. J., archts. and engrs. CD 8/31.

▲† **O. Dayton**—AIR BASE—U. S. Eng. 830 W. Broadway, Louisville, Ky., 2 story, 62,000 sq. ft. noncombustible Air Technical Intelligence Center Bldg., $1,000,000. Bids January 1956; 1,750 ft. underground steam mains extens., connections to two bldgs., $200,000, Bids November 1955, foregoing at Wright Patterson Air Force Base.

▲† **O., Dayton**—AIR BASE—U. S. Eng., P. O. Box 59, Louisville, Ky., 63,570 cu. yd. rein.-con. paving, b. conc. stabil. shoulders, widen Taxiway No. 5, entrance-exit lights, relocation of underground cables, $500,000, Bids November 1955; 1 story, 13,430 sq. ft. Airmen Dining Hall No. 2, $300,000, Bids October 1955; 89,690 sq. ft. officers quarters, incl. walks, parking area, $500,000; primary runway exten. (extra heavy) 300x1,000 ft., 130x150 ft. b. conc. blast pad, rehabilitate present runway, $1,200,000, Bids September 1955; six bldgs., academic north, academic south, library, cafeteria and student center, aeronautical laboratory, 192,300 sq. ft. heating plant, $1,500,000, Wright Patterson Air Force Base.

▲† **Okla., Ardmore**—HOUSING, etc.—U. S. Eng., Box 61, Tulsa, Zone 2, housing, $5,400,000; airport facilities, $1,400,000, Ardmore Air Force Base. CD 1/24/52.

LATIN AMERICA

Mexico, Jaltipan—Pan-American Sulphur Co., Corrigan Tower, Dallas, Tex., plans plant expansion. $750,000.

PUBLIC BUILDINGS

▲† **Ky., Fort Knox**—BARRACKS, etc.—U. S. Eng., 830 W. Broadway, Louisville, two 326-man enlisted mens barracks, heating plant, $1,000,000; communications school and paving $500,000; officers mess hall addn., paving, swimming pool and bath house, $500,000; 5 battalion classroom Bldgs., paving, $100,000; cold storage plant addn. and parking area, $100,000; 3 regimental dispensaries and paving, $200,000. 2 branch post exchanges, paving, $150,000; hardstand paving, $100,000; 360-unit, 270 row houses for N.C.O. 82 duplexes for officers, 8 single unit houses for colonels and up, $4,950,000.

▲ **Mass., West Boylston**—SCHOOL—Town, c/o Supt. Schools, Crescent St., plans by S. S. Haynes & Assoc., Inc., 336 Main St., Fitchburg, Junior-Senior High School, $1,216,000.

▲ **Mo., Independence**—LIGHT PLANT—City, City Hall, voted $10,000,000 bonds Aug. 16, municipal light plant. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 6/21.

▲† **N. J., Fort Dix**—MEDICAL and ADMINISTRATIVE FACILITIES—U. S. Eng., 2635 Abbotsford Rd., Phila., Pa., housing community medical and administrative facilities, $6,698,000.

N. D., Grand Forks—DORMITORY—State Bd. Higher Educ., Bismarck, plans by DeRemer, Harrie & Kennedy, 323½ DeMers Ave., mens' dormitory, University of North Dakota. $600,000. Ericksen & Pfost Co., Endicott-on-Robt. Bldg., St. Paul, Minn., consult. engr. CD 8/29.

▲ **O., Chardon**—HOSPITAL—Geauga County Hospital Assn., Rte. 1, Chardon, plans by Garfield, Harris, Robinson & Schafer, 1740 E. 12 St., Cleveland, Zone 14, hospital. $1,250,000. CD 11/25/49.

▲† **Tex., Excell**—PLANT—Bureau Mines, Dpt. Interior, C St. between 18 and 19 Sts. N.W., Wash., D. C. plans by Stearns-Roger Mfg. Co., archt.-consult. engr., 660 Bannock St., Denver, Colo., helium mfg. plant, $4,000,000-$5,000,000. CD 8/10.

Tex., Texarkana—COLLEGE FACILITIES—Texarkana Junior College, Texarkana, voted $500,000 bonds college facilities at Texarkana Junior College. CD 4/22/48.

▲† **Va., Fort Belvoir**—HOUSING—U. S. Eng., 1st and Douglas Sts. N. W., Wash., D. C., 114-unit family housing. $1,000,000-$3,000,000.

▲ **Wash., Everett**—SCHOOL, etc.—School District No. 2, Everett, bond election Nov. 8, Junior High School, $1,500,000; elementary school $450,000; Junior College, $1,700,000. CD 11/9.

▲ **Wis., Plymouth** — SCHOOLS — Bd. Educ., Plymouth plans by E. A. Stubenrauch & Assocs., 712 Erie Ave., Sheboygan, 2 new elementary schools, high school addn. $1,250,000.

▲ **Alta., Lethbridge**—POWER HOUSE—City, City Hall, power house extension, $3,000,000. A. L. H. Somerville, city engr. Stone & Webster Eng. Corp., 49 Federal St., Boston, Mass., U. S. A., consult. engrs.

▲ **Que., Montreal**—MUSIC CENTER—City, City Hall, music center to incl. large concert hall with 3,000 seating capacity, and various smaller halls and auditoriums, $10,000,000. Clarke & Rapuano, 145 E. 32 St., New York, N. Y., landscape archts. Lucien L'Allier, c/o owner, dir. P. Wks.

COMMERCIAL BUILDINGS

▲ **Ala., Florence**—SHOPPING CENTER—Seven Points Development Co., Inc., c/o Turner & Northington, archts., Medical Arts Bldg., shopping center in North Florence $1,000,000.

▲ **Calif., Covina**—DWELLINGS—Homes of Merit, Inc., 9054 E. Garvey Ave., South San Gabriel, plans by Edward E. Carver, 7827 E. 8 St., Downey, 197 frame, stucco dwellings, Tract 21240 $2,000,000.

▲ **Calif., Norwalk**—DWELLINGS—D. & E. Corp., 8906 W. Olympic Blvd., Beverly Hills, plans by Edward E. Carver, 7827 E. 8 St., Downey, 54 dwellings in Tract 21663; 110 in Tract 21756; 49 in Tract 18924, in Norwalk and 102 dwellings in Tract 16672, in Rivera, $3,000,000.

▲ **Calif., Pleasant Hills**—SHOPPING CENTER—El Dorado Assn., 1127 Solano Ave., Albany, preliminary plans by Wilder Co., Box 876, Los Altos, shopping center, incl. 7 buildings, $2,000,000.

Calif., Rialto—DWELLINGS—Mahana & Wells, 1425 Mission St., South Pasadena, plans by Edward E. Carver, 7827 E. 8 St., Downey, 82 frame, stucco dwellings, Tracts 4888 and 4889 $850,000.

▲ **Calif., Sacramento**—HOTEL—Fred Kaiser, 1920 T St., Sacramento, 12 story 130-room luxury hotel with swimming pool and garden court, $1,250,000.

▲ **Calif., Sacramento**—TELEPHONE EQUIPMENT BUILDING—Pacific Telephone & Telegraph Co., 14 and K Sts., 100,000 sq. ft., 8 story, main dial telephone equipment bldg. addn. $3,000,000. CD 1/21/48.

▲ **Colo., Boulder**—HOUSING—Highlands Homes, Inc., 3014 West Boulder St., Colorado Springs, housing, incl. 130 residences in northeastern section of city, $1,750,000.

Ind., Madison—HOSPITAL—Bd. Managers Kings Daughters Hospital, Madison, hospital addn., Poplar St. $500,000.

Ky., Louisville—RELIGIOUS EDUCATIONAL, etc.—Crescent Hill Baptist Church 2800 Frankfort St., plans by Jas. H. Kolbrook, Starks Bldg., 3 story, religious educational bldg. and recreational bldg. $350,000. Bids about Sept. 15. E. R. Ronald & Assocs., 554 S. 3 St., consult. engrs.

Md., Frederick—DORMITORY—Hood College, Frederick, dormitory, $500,000.

▲ **Mass., Brockton**—SCHOOL—Roman Catholic Diocese of Boston, Chancery, 1 Lake St., Boston, plans by Maginnis & Walsh & Kennedy, 126 Newbury St., Boston, Catholic high school, Court St. $2,000,000. CD 12/28/53.

Mass., Pittsfield—OFFICE—Berkshire Life Insurance Co., 7 North St., plans by Cram & Ferguson, 248 Boylston St., Boston, insurance office bldg., South St. Over $500,000.

Mo., Jefferson City — **FARM BUREAU** — Farm Bureau Building Corp. (Missouri Farm Bureau Federation)

Jefferson City, plans by Marcel Boulicault, 411 N. 7 St., St. Louis, farm bureau bldg at Hy. No. 50, $650,000.

N. Y., Brooklyn — APARTMENT — Sherbar Development Corp., 215 Montague St., Zone 2, plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, 6 story apartment, 1250 Ocean Parkway. $900,000.

▲ N. Y., Elmhurst—APARTMENT—Oak Leasing Corp., c/o George Miller, 125 W. 45 St., New York, Zone 19, 6 story apartment, 62 Rd. and 108 St. $1,000,000.

▲ N. Y., New York—OFFICE—Canada House, New York, Ltd., 1290 Bay St., Toronto, Ont., Canada, plans by Marani & Morris, 1250 Bay St., Toronto, Ont., and Eggers & Higgins, 100 E. 42 St., Zone 17, 27 story office, 680-684 Fifth Ave. $4,500,000. CD 7/11.

N. Y., New York—APARTMENT—Lorack Estates, Inc., 418 Bryant Ave., plans by Lawrence M. Rothman, 147 E. 125 St., Zone 35, 6 story apartment, Bronx Park east and Reiss Pl. $500,000.

▲ N. Y., New York—APARTMENT—Joseph Sager, 71 Monmouth Dr., Deal, N. J., plans by William I. Hohauser, 151 W. 51 St., Zone 19, 12 and 18 story apartment, 315-321 E. 72 St. and 310-318 E. 73 St. $1,970,000.

▲ O., Cleveland—PHYSICAL EDUCATION—Case Institute of Technology, 10900 Euclid Ave., Zone 5, plans by Small, Smith & Reeb, 1010 Euclid Ave., Zone 15, physical education bldg., containing gymnasium, handball and squash courts, swimming pool, rifle range, fencing and wrestling rooms, shower, locker rooms, etc. $1,600,000. Bids in November. CD 6/6/50.

▲ O., Eastlake—HOMES—L & M Constr. Co., Leo Goldberg, 2020 St. Clair Ave., Cleveland, Zone 17, 200-300 frame homes, 70-acre area between Vine and Lakeland Blvd., $3,200,000.

▲ O., Elyria—SHOPPING CENTER—Affiliated Builders, Inc., L. Laurence Liss, pres., 1003 Melvyn Lane, plans by Finkel & Finkel, Lorain, glass, steel, concrete shopping center (9 stores), bank and service station, at Ely Village Home Development. $1,000,000.

▲ O., Wickliffe—COLLEGE BLDGS.—Telshe-Yeshivah Rabbinical College, 706 E. 105 St., Cleveland, Zone 8, plans by Louis Skolnik, Perry-Payne Bldg., Cleveland, Zone 13, classrooms bldg., high school, gymnasium, dormitories, library, main college and worship hall. $1,500,000.

Okla., Oklahoma City—SUPERMARKET—Safeway Stores, Inc., 4th and Jackson Sts., Oakland, Calif., supermarket, Britton and Waverly Rd. $500,000. Preston Constr. Co., c/o owner, engr.

Pa., Harrisburg—BANK—Harrisburg National Bank & Trust Co., 16 S. 2nd St., 4 story, brick office bldg., 12-10 S. 2nd St. and renovation of bank bldg. 14-16 S. 2nd St. $500,000. Bids in Spring of 1956.

Pa., Johnstown—HOSPITAL—Conemaugh Valley Memorial Hospital, Johnstown, plans by Hunter, Caldwell & Campbell, U. S. Bank Bldg., complete hospital interior alterations, $600,000.

Tex., Abilene—SHOPPING CENTER—Abilene Investment Co., 9620 John West Rd., Dallas, shopping center, 18-acre site. $750,000.

▲ Tex., Fort Worth—HOSPITAL—All Saints Episcopal Hospital, W. Magnolia St., plans by A. George King & Assocs., 819 Penn St., hospital. $2,000,000. CD 9/10/53.

Tex., Houston—OFFICE—H. & G. Properties, Inc., c/o James L. Fox, trustee, 1419 Garson St., office, $750,000.

Tex., Longview—SHOPPING CENTER—Childs Food Stores, c/o Crawford Godfrey, c/o Piggly-Wiggly Stores, Longview, shopping center, 10-acre site. $850,000.

Tex., San Antonio—ACTIVITIES—Laurel Heights Methodist Church, Woodlawn and Belknap Sts., plans by Milton A. Ryan, 601 Elizabeth Rd., activities bldg., remodel existing educational bldg. $500,000.

▲ Tex., Waco—DORMITORY—Baylor University, Waco, plans by G. Mallory Collins, 2921 Fairmount St., Dallas, 5 story women students dormitory. $1,000,000. CD 4/11/52.

▲ Man., Winnipeg—HOTEL—The Marlborough, c/o Libling & Michener, archts., 505-138 Portage Ave. E., 10 story hotel addn., plus 10 story parking garage, near the hotel. $2,750,000. CD 7/19.

▲ Ont., Toronto—APARTMENT—Dr. J. Kuhl, 17 Fairleigh Cres., plans by Bregman & Hamann, 7 Adelaide St. E., 13 story, 136-suite, steel, brick apartment, St. Clair Ave. and Avenue Rd. $1,200,000.

INDUSTRIAL BUILDINGS

▲ Conn., Mechanicsville—PLANT—Uncas Printing & Finishing Co., Mechanicsville, textile plant, $2,000,000.

Ind., Huntington—DISTRIBUTION CENTER—Sun Oil Co., 420 Lexington Ave., New York, N. Y., gasoline distribution center for Northern Indiana near here, $500,000.

▲ La., Lake Charles—PLANT—Lone Star Cement Corp., 342 Madison Ave., New York, N. Y., mfg. plant with 2,000,000 bbl. annual capacity on 350-acre tract on west shore of Calcasieu River 6 mi. south of here, $14,000,000.

▲ Md., Elkton—PLANT—Champion Brick Co., 7600 Pulaski Hy., Baltimore, brick mfg. plant, Red Hill Rd. $1,400,000. Will go ahead in Spring.

▲ Minn., Golden Valley (Minneapolis, P. O.)—FACTORY-OFFICE—G. H. Tennant Co., 2530 North 2 St., Minneapolis, 1 story, steel, conrete factory-office, Hy. 100 and Olson Hy. $1,000,000.

▲ O., Bucyrus—WAREHOUSE—Timken Roller Bearing Co., 1835 Dueber Ave. S. W., Canton, 100,000 sq. ft. warehouse at factory site. $1,500,000. CD 3/31/50.

O., Columbus—FACTORY, etc.—Walker T. Dickerson Co., 326 S. Front St., 50,000 sq. ft. shoe factory and warehouse, 117-acre site Clickenger Airport, Williams and Lockbourne Rds., south of here. $500,000.

O., Sidney—GRAIN ELEVATOR—Farm Bureau Co-operative Assn., Inc., 245 N. High St., Columbus, 500,000 bu. terminal grain elevator. $650,000.

▲ Tex., Orange—PLANT—Texas Portland Cement Co., Kent B. Diehl, Sr., Orange, cement mfg. plant, 6 mi. north of here. $3,000,000.

▲ Tex., San Antonio—SHOP—Hearst Consolidated Publications, Inc., 458 S. Spring St., Los Angeles, Calif., modernizing printing shop and const. new production bldg. $1,500,000.

▲ Philippines, Manila—PLANT—Goodrich International Rubber Co., Manila, rubber tire mfg. plant. $4,500,000.

▲ B. C., Coquitlan—PLANT—Douglas Distilleries Ltd., 615 West Pender St., Vancouver, grain alcohol distillery and vodka plant. $6,000,000.

▲ Que., Varennes—FACTORY—Canadian Titanium Pigments, Ltd., 630 Dorchester, St., Montreal, subsidiary of National Lead Co., 111 Broadway Ave., New York, N. Y., U. S. A., factory, $15,000,000. United Engineers & Consultants, Drexel Bldg., Phila., Pa., U. S. A., consult. engrs. A. V. Bender, c/o National Lead Co., 111 Broadway, New York, N. Y., U. S. A., ch. engr.

▲ Sask., Regina—PLANT—Hoesch Co. of West Germany, Dortmud, Germany, 50,000 sq. ft. steel-pipe mfg plant, 160-acre site on northwest outskirts of city. $3,000,000.

UNCLASSIFIED

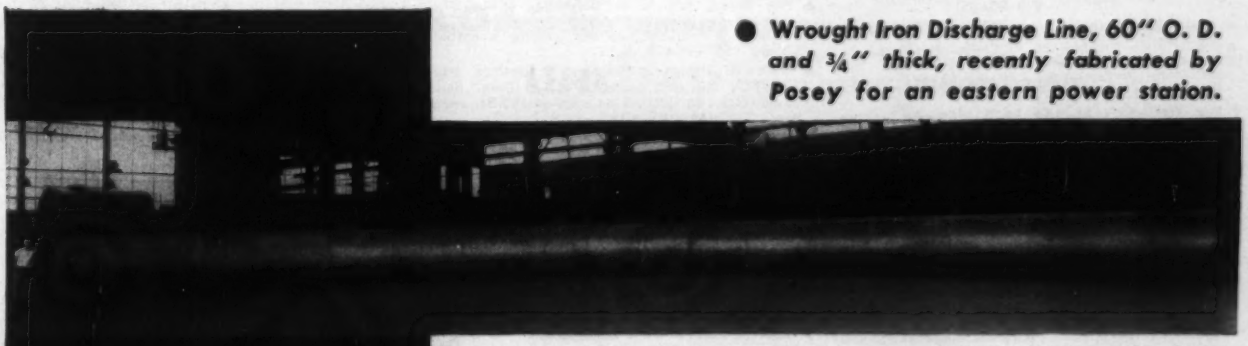
▲ Alabama—HIGHWAY TUNNEL—Red Mountain Tunnel Auth., Birmingham, will be set up to construct highway tunnel through Red Mountain from Birmingham, Homewood and Mountain Brook, To exceed $2,000,000.

O., Dayton—DRIVE-IN THEATER—Sam Levin, 5405 W. 3 St., drive-in theater, swimming pool, Wagner Ford Rd. and Traffic Circle. $500,000. CD 12/2/52.

† Pa., Phila.—UTILITIES—U. S. Eng., 2635 Abbottsford Rd., utilities, Frankford Arsenal. $855,000.

▲† Virginia—VISTORS CENTERS—General Services Admin., General Services Bldg., 19 and F St. N. W., Wash. 25, D. C., plans by Gilboy, Bellante & Clauss, Rittenhouse-Savoy Bldg., Phila., Pa., two visitors centers at Jamestown and Yorktown, Colonial Parkway for National Park Service. $1,080,000. CD 7/19.

▲ Que., Montreal—SPORTS CENTER—City, City Hall, 25,000-seat sports center, incl. baseball and football stadium, track, hockey rink, swimming pools, Sherbrooke St. E. and Pie IX Blvd. $6,000,000. Clarke & Rapuano, 145 E. 32 St., New York, N. Y., U.S.A., landscape archts. Lucien L'Allier, c/o owner, dir. P. Wks.



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NEW ENGLAND

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STREETS AND ROADS
September 19 Connecticut - September 20 Massachusetts

▲ **Mass., Boston**—PIER—BA 9/22—Commonwealth of Mass., Port of Boston Comn., J. M. Dresnahan, dir., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, W-702 Contr. 1, Commonwealth Pier No. 5, renovation and modernization, South Boston, $1,030,000. Plans deposit $100, refundable. Fay, Spofford & Thorndike, 11 Beacon St., Boston, engrs. CD 7/2/54.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Central Constr. Co. of Lawrence, 6 Beacon Ave., Lawrence, Mass. CA $2,635,810, est. $3,000,000. hy. relocation Rte. 3, Plymouth. CD 8/30, under LB.

BUILDINGS—LB & CA

Vappi & Co., Inc., 240 Sidney St., Cambridge, Mass. LB $779,666, est. $894,000. Elementary SCHOOL N. Union and Everett Sts., East Arlington, ARLINGTON, MASS. Town, Marat E. Santini, chn. School Bldg., Comr., 23 Maple St., Arlington, Mass. Bids Sept. 1. CD 8/10.

S. & A. Allen Constr. Co., Inc., 9 Newbury St., Boston, Mass. LB $948,000. HEALTH CENTER, Florence St., NEWTON, MASS. Suburban Sidney Hill, Inc., 1 Court St., Boston, Mass. Bids Sept. 1. CD 8/23.

▲ **Charles A. Mogravero Co., Inc.**, 199 Washington St., Boston, Mass. CA Est. $1,600,000. RESIDENTIAL DEVELOPMENT, 95 houses, Old West Elm St., PEMBROKE, MASS. Indian Head Realty Corp., 199 Washington St., Boston, Mass. John T. Units, 103 Sagamore St., Holbrook, Mass., archt.

▲ **John Zandonella**, 70 Chase St., Bridgeport, Conn., CA, $1,432,000. 6 SCHOOL addns., MILFORD, CONN. Town, Town Hall, Milford, Conn. Bids July 26. CD 7/29, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 30 Pennsylvania
STREETS AND ROADS
September 22 New Jersey September 30 Pennsylvania

▲ **Pa., Phila.**—WHARF—BA 9/20—Gulf Oil Corp., 30 St. and Penrose Ave., wharf repairs, $5,000,000. Tippetts-Abbett-McCarthy & Stratton, 62 W. 47 St., New York, N. Y., engrs. CD 9/7.

† **New York**—SPECIAL AAA FACILITIES—BA 9/21—U. S. Eng., 111 E. 16 St., New York, Zone 3, Special AAA Facilities, Cambria, $500,000-$1,000,000. Extended date, Greenberg & Ames, 303 Fourth Ave., New York, Zone 10, archts. CD 8/15.

▲† **Maryland and West Virginia**—BA On Or About 10/18—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., local flood protection proj. Cumberland, Md. and Ridgeley, W. Va., channel imprv. Wills Creek, (Potomac River) Section Nos. 2, 3 and Viaduct, pumping station, along Wills Creek just upstream from B & O R.R. viaduct bridge in city of Cumberland, Md., incl. realignment, excav. to new grade and cross-sections of channel of Wills Creek distance of approx. 3,200 lin. ft.; placement rein.-con. slope paving and vertical walls forming sides of channel with some channel floor paving; rein.-con. substructures and brick, concrete superstructure for Viaduct Pumping station; rein.-con. sluice gate manholes, conduits, inlet and outlet structures; all operating units required for pumping station, incl. two 23,000 g.p.m. storm water pumps, electric motors, sluice gates, electrical switchgear, piping, electric power and lighting system, accessories, appurtenances; CIVENG-49-080-56-6. CD 3/2.

BUILDINGS—BA

Pa., Neshaminy—SCHOOL—BA 9/23—Middletown Twp. School Bd., elementary school, Chickenfoot Rd. $720,000, Haag & D'Entremont, Jenkintown, archts.

Pa., Easton—HALL OF SCIENCE—BA 10/3—Robers & Butler, archts., 219 E. 44 St., New York, N. Y. (selected list of bidders) Olin Hall of Science, for Lafayette College, Easton, Pa. $900,000. CD 5/25.

HEAVY CONSTRUCTION—LB & CA

▲† **Joseph E. Bennett Co., Inc.**, 2 Elm Place, Brookline, Mass. LB $1,533,300, est. $1,500,000. constr. Special AAA Facilities, Hamburg, Eng. 30-075-56-6, NEW YORK. U. S. Eng., 111 E. 16 St., New York, N. Y. Bids Aug. 31. CD 7/29.

▲ **Arthur A. Johnson, B. Perini & Sons and Peter Kiewit Co.**, 347 Madison Ave., New York 17, N. Y. LB Proposition 1 $5,586,963, Proposition 2 Proposal A $9,418,937, Proposition 2 Proposal B $9,207,397, Proposition 3 Proposal A $14,234,053. Proposition 3 Proposal B $14,041,118. DeKalb Ave. reconstr., general constr. Sections 1 and 2, Brooklyn Boro, Constr. No. C-102, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Aug. 26. CD 7/19.

▲ **Hendrickson Brothers, Inc.**, 63 N. Central Ave., Valley Stream, N. Y. LB $3,954,060. laterals sewers vicinity of Valley Stream and Malverne, town of Hempstead, Sewage Collection Dist. No. 2-VS contr. No. 1002-2-VS-4, MINEOLA, N. Y. Bd. Supervs. Nassau Co., Old Country Court House, Mineola, N. Y. Bids Aug 30. CD 8/2.

Frank Mascali & Sons, Inc., 120 St. and 31 Ave., Flushing, N. Y. LB $715,354. (12 bidders) bridge to carry Bruckner Blvd. over right-of-way of New York, New Haven & Hartford R. R. between Whitlock Ave. and Whittier St. grading Bruckner Blvd., NEW YORK, N. Y. President Bronx Boro, Bronx County Bldg., 851 Grand Concourse, Bronx 51, N. Y. Bids Sept. 7. CD 8/18.

▲ **Atlas Tile & Marble Works, Inc. and Thomas Crimmins Contg. Co.**, 41-17 Crescent St., Long Island City, N. Y. CA $1,482,785 (6 bidders) alterations, demolition, excavation, foundations for 74th Street Power Plant, furnishing, fabricating, erecting structural steel for 74th Street Power Plant, Manhattan Boro, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Aug. 19. CD 7/28.

▲ **Condenser Service & Engineering Co.**, 60 Wall St., New York 4, N. Y. CA $1,100,939. furnishing, installing condenser heaters, mechanical equip., Contr. No. P-143 for 74 Street Power Plant, Manhattan Boro, NEW YORK, N. Y., New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Aug. 5. CD 7/5.

▲ **Westinghouse Electric Corp.**, P. O. Box 868, Pittsburgh 30, Pa. CA $1,929,818. furnish, install 60,000 kw. turbine generator for 74 Street Power Plant, Contr. P-141, Manhattan Boro, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. CD 7/18, under LB.

Lipsett, Inc., 99 Park Ave., New York, N. Y. LB $787,269. north and south portal bldgs. and adjacent cut and cover tunnel sections to rock portals of T. J. Evans Tunnel on Northeastern Extension, Lehigh and Carbon Counties, PENNSYLVANIA. Pennsylvania Turnpike Comm., 11 N. 4 St., Harrisburgh, Pa. (Correction—type of work). CD 9/6, under LB.

BUILDINGS—LB & CA

▲ **Elmwood Gardens Homes**, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. $2,775,000. 185 HOUSES on tract on old Bethpage Rd. east of Central Park Rd., BETHPAGE, N. Y. CD 8/31, under CA.

▲ **Post Homes**, c/o A. H. Salkowitz, archt., 87-25 Homelawn St., Jamaica 32, N. Y. Owner Builds. $6,500,000. 550 HOUSES, Jericho Turnpike in Eastwood Village, CENTEREACH, N. Y.

▲ **Prudential Homes**, c/o Benjamine R. Levinson, archt., 167-16 Hillside Ave., Jamaica, N. Y. Owner Builds. $1,600,000. 80 HOUSES on tract at 150 St. and 77 Ave., KEW GARDENS HILLS, N. Y.

Hampshire Estates Homes, c/o Alfred Willis, archt., 1321 Larchmont Ave., Larchmont, N. Y. Owner Builds. $700,000. 15 HOUSES, Sylvan Ave. on Orienta Point, MAMARONECK, N. Y.

Cliff Wood Estates, c/o Leonard Feinen, archt., 320 Lincoln Ave., Hasbrouck Heights, N. J. Owner Builds. $720,000. 24 HOUSES on tract near John St. south of Palisade Ave., ENGLEWOOD CLIFFS, N. J.

▲ **Mahoney-Troast Constr. Co.**, 790 Bloomfield Ave., Clifton, N. J., CA, $2,500,000. SERVICE SHOP and WAREHOUSE, Tonnelle Ave., NORTH BERGEN, N. J. General Electric Co., 1 River Rd., Schenectady, N. Y. Lockwood-Greene Engineers, Inc., 41 E. 42 St., New York 17, N. Y., engr.

Sleepy Hollow Homes, c/o George W. Wilms & Co., 13-47 River Rd., Fairlawn, N. J. Owner Builds. $700,000. 46 HOUSES on tract at Minnihaha Rd. and Wenoah St., OAKLAND, N. J.

▲ **Trenton Home Builders, Inc.**, 17 Clermont Ave., Trenton, N. J. Separate Contracts. $1,500,000. RESIDENTIAL DEVELOPMENT, Ewing Twp., Pennington Rd., TRENTON, N. J.

▲ **Plotnick Bros.**, Manheim and Schuyler Sts., Phila., Pa. Separate Contracts. $1,500,000. RESIDENTIAL DEVELOPMENT, L and K Sts., Bristol and Hunting Park Aves., PHILA., PA. CD 4/25.

▲ **Geo. A. Fuller Co.**, 706 First National Bank Bldg., Pittsburgh, Pa. CA Est. $3,000,000. 8 story, steel food RESEARCH CENTER, incl. kitchens, research laboratory, quality control laboratories, executive offices, PITTSBURGH, PA. H. J. Heinz Co., 1062 Progress St., Pittsburgh, Pa. Jaros Baum & Bolles, 415 Lexington Ave., New York, N. Y., engrs. CD 8/22.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 23 Kentucky
STREETS AND ROADS
September 21 Louisiana, Virginia September 23 Kentucky

BUILDINGS—BA

Va., Richmond—BUS TERMINAL—BA 9/21—Atlantic & Richmond Greyhound Lines, L. C. Major, pres., Broad and Jefferson Sts., bus terminal and service bldg. $800,000. Arrasmith & Tyler, 200 Madrid Bldg., Louisville Ky., archts. Balou & Justice, 106 E. Cary St., assoc. archts. CD 6/10.

▲ **Ky., Bowling Green**—DORMITORIES—BA 10/13—State Div. Purchase, Frankfort, 2 men's dormitories, Western State College, $1,000,000. CD 5/31.

BUILDINGS—LB & CA

▲ **George A. Fuller Co.**, Munsey Bldg., Wash., D. C., CA Est. $7,000,000-$8,000,000. OFFICE BLDG., RICHMOND, VA. Reynolds Metals Co., Reynolds Metals Bldg., Richmond 19, Va. Ebasco Services, Inc., 2 Rector St., New York, N. Y. CD 4/16/54, under Industrial Buildings.

▲ **J. A. Jones Constr. Co.**, Box 1818, Shreveport, La. CA $2,676,400. Proj. No. 07 -ICE CORRECTIONAL INSTITUTE, State Hy. 104, DE QUINCY, LA. State Bldg. Auth., State Capitol, Baton Rouge, La. Bids Aug. 23, awarded Sept. 1. CD 8/26, under LB.

▲ **Barksdale & LeBlanc**, Box 1567, Baton Rouge, La. CA $1,512,000. HOME ECONOMICS and HOME MANAGEMENT BLDGS., LABORATORY SCHOOL at Southern University, SCOTLANDVILLE, LA. State Bldg. Auth., State Capitol, Baton Rouge, La. Awarded Sept. 1. CD 8/30, under LB.

Southern Builders, Inc., Box 1815, Shreveport, La. LB $725,000. Negro Elementary SCHOOL, Holzman and Patzman Sts., SHREVEPORT, LA. Caddo Parish School Bd., Shreveport, La. CD 6/24, under LB.

MIDDLE WEST

STATE HIGHWAY LETTINGS
BRIDGES
September 21 Michigan
STREETS AND ROADS
September 20, 21 Michigan

BUILDINGS—BA

O., North Canton—SCHOOL—BA 10/4—Bd. Educ., 2 story, brick high school, $825,000, Ralph Dix Jr., 3307 Martindale St., N.E., Canton, archt. CD 11/5.

BUILDINGS—SLC

▲ **Ill., Decatur**—STARCH DRYING PLANT—A. E. Staley Mfg. Co., 2200 E. Eldorado St., soon lets contract starch drying bldg. $1,000,000. N. A. Scranton, c/o owner, company engr.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
O.—Foley Constr. Co., 505 Orchard St., Cincinnati, O. CA $3,996,421, est. $4,385,500. Type T-71 and structures 4.91 mi. S. R. 4W Section 4.21, UI 316 (4), city of Cincinnati and City of St. Bernard, Hamilton Co. CD 8/29, under LB;
O.—Oyler Bros. Inc., 1324 Second St. S. W., Canton, O. CA $78,916, est. $88,000. Type T-35 on B-119 and structure 0.179 mi., S. R. 302, Sections 0.86, 14.34 (Parts Nos. 1 and 2), (Part No. 1), Perry Twp. Ashland Co.;
O.—Jones Asphalt Paving Co., Rte. No. 1, Wooster, O. CA $89,167, est. $89,377. Type T-30, B-35, T-35, (1), USR 12-12.40, 16.93 (2), USR 21-(19.59; 19.62 Canal Fulton), (3) SR 241-0.00, 0.15, Stark Co. Grand total $4,164,504. Bids Aug. 23. CD 7/26.

▲ **Thompson-Starrett Co., Inc.**, 130 N. Wells St., Chicago, Ill., CA, $1,128,087, filtration plant, pumping station, intake bldg. and paving EAST MOLINE, ILL. City, City Hall, East Moline, Ill. Bids June 27, awarded Aug. 24. CD 7/11, under LB.

▲ **S. N. Nielsen**, 3059 Augusta Blvd., Chicago, Ill., CA, $1,856,257, sewage treatment plant, intercepting sewers, water mains, JOLIET, ILL. City, City Hall, Joliet, Ill. Bids July 19, awarded Aug. 29. CD 7/27, under LB.

BUILDINGS—LB & CA

▲ **Marist Order Corp. of Ohio**, c/o Stickle & Assoc., archts., 2422 Prospect Ave., Cleveland 15, O. cancelled bids to have been opened Sept. 1 and will be delayed until either December or January, Chanel HIGH SCHOOL, BEDFORD, O. Est. $1,000,000. CD 8/17.

▲ **Jas. I. Barnes Constr. Co.**, 6 Bechtle Ave., Springfield, O. CA Est. $1,000,000. commercial HOTEL, in Lincoln Village 5000 W. Broad St., COLUMBUS, O. Peoples Development Co., 246 N. High St., Columbus, O. Gamble, Pownall & Gilroy, Fort Lauderdale, Fla., archts.

▲ **Des Plaines Valley Constr. Co.**, 1 South East Ave., Joliet, Ill., CA, $2,621,565. construct, manage and finance Wherry HOUSING, GLENVIEW, ILL. Wilsey, Collins & Reynolds, 2903 Farnsworth St., Great Lakes, Ill. J. F. Lankton & Ziegele, First Natl. Bank Bldg., Peoria, archts. Navy Dpt., lessee. Awarded Sept. 1. CD 7/6, under CA.

Cornelius Pitt, 39 S. La Salle St., Chicago 3, Ill., CA, $750,000. HOSPITAL, SOUTH BEND, IND. South Bend Osteopathic Hospital, 118 S. William St., South Bend, Ind., John N. Marx, 333 N. Michigan St., Chicago 1, Ill., archt. Awarded Aug. 29.

▲ **John K. Walsh**, 5821 Edgewood Ave., La Grange, Ill., CA, $3,200,000, 200 HOMES, water sys., sewage disposal plant Plainfield Rd. near Brainard Ave., LA GRANGE, ILL. Robert V. Hladik, 3718 Grand Ave., Brookfield, Ill. Oliver Sandquist, 49 E. Oak St., Chicago, Ill., archt. Awarded Aug. 23.

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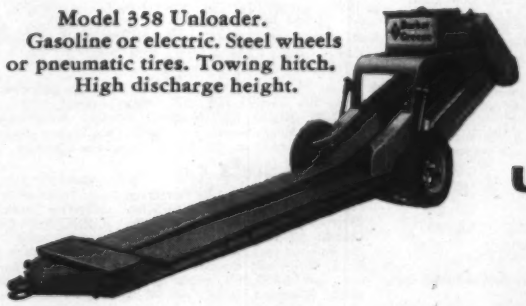

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WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 20 Iowa — September 21 Missouri
September 23 Minnesota

STREETS AND ROADS

September 20 Iowa — September 21 Missouri
September 23 Minnesota

▲ **OKLAHOMA**—BA 9/27—Oklahoma Turnpike Auth., 321 N. E. 24 St., Oklahoma City,
Craig Co.—4 concrete, steel bridges on turnpike at Vinita, $478,000.
Ottawa Co.—7 bridges on turnpike at Afton, $553,000. 3 concrete, steel bridges on turnpike at Miami, $170,000.
Rogers Co.—overpass over the Missouri Pacific Ry. and Hy. 48 on Turnpike at Claremore, $234,000.

7 concrete, steel bridges on turnpike at Claremore, $680,000. DeLeuw Cather & Co., 321 N. E. 24 St., Oklahoma City, engrs. CD 1/8/53, under Streets and Roads.

▲ **OKLAHOMA**—BA 9/27—Oklahoma Turnpike Auth., 321 N. E. 24 St., Oklahoma City,
Mayes Co.—graoe, drainage 2.67 mi. Big Cabin Interchange, Big Cabin, $440,000.
Rogers Co.—grade, drainage 3.522 mi. Claremore Interchange for toll road, $548,000.

grade, drain 1.516 mi. turnpike at Claremore, $274,000. DeLeuw Cather & Co., 321 N. E. 24 St., Oklahoma City, engrs. CD 1/8/53.

▲† **South Dakota**—BA After 10/15—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., spillway earthwork, Stage I, approx. 7 to 8 million cu. yd. unclassified excav. in downstream half of spillway channel, material to be deposited in a spoil bank. Total appropriation, $25,000,000. CD 5/25/44.

▲ **Tex., Brownsville**—DOCKS—BA 11/2—Bd. Comrs. Brownsville Navigation Dist. of Cameron Co., Brownsville, 200x1,000 ft. rein.-con. and/or steel warehouse over Docks 12 and 13. $1,000,000. Extended date. Cameron Eng. Co., Maltby Bldg., engr. CD 8/16.

▲† **South Dakota**—BA After 12/1—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., earthwork, Stage V, approx. 20 to 25 million cu. yd. unclassified excav. from vicinity of powerhouse on left bank and outlet works channel on right bank, material will be placed in ambankment on left bank and in chanel enclosure sect. Total appropriation $25,000,000. CD 5/25/44.

BUILDINGS—BA

▲ **Neb., Omaha**—DORMITORY, etc.—BA 9/20—Creighton University, 25 and California Sts., mens dormitory and students lounge. $1,000,000. L. A. Daly Co., Insurance Bldg., archt. CD 6/23.

▲ **Tex., Dallas**—HIGH SCHOOL—BA 9/27—Dallas Independent School Dist., 3700 Ross St., Senior High School, Prairie Creek Rd. in Pleasant Grove Area. $1,475,000. Plans deposit $25. R. L. Rolft, 2401-A Bryan St., and Zumwalt & Vinther, 929 Mercantile Sec. Bldg., archts. Mark Lemmon, Thomas Bldg., engr. CD 12/15.

▲ **Tex., Houston**—SHOPPING CENTER—Bids Asked—Frank W. Sharp, 6302 Bellaire Blvd., 125,000 sq. ft. masonry shopping center, Mangum Rd. and 43 St., 12 acre tract. $2,000,000. Crochet & Carroll, 4574 Griggs St., proj. archts.

HEAVY CONSTRUCTION—LB & CA

▲ **Johnson, Drake & Piper**, Baker Bldg., Minneapolis, Minn. CA $2,863,124. general contract baseball stadium, BLOOMINGTON (P. O. MINNEAPOLIS), MINN. Metropolitan Sports Area Comn., G. L. Moore, chmn., 1750 Hennepin Ave., Minneapolis, Minn. Bids Aug. 23, CD 8/26;
Sterling Electric Co., 33 S. Fifth St., Minneapolis, Minn. CA $545,865. electric work (Bloomington, Minn.).

† **E. A. Kramme Co., Inc.**, 5770 2 Ave., Des Moines, Iowa, LB, $990,859. bridges, paving and railroad track of C. R. & L. R. R. tracks, Hy. 218, Stage III, Coralville Reservoir Proj., Inv. 11-117-56-4, IOWA, U. S. Eng., Clock Tower Bldg., Rock Island, Ill. Bids Aug. 30. CD 8/12.

▲ **KANSAS**—Kansas Turnpike Auth., P. O. Box 681, Topeka,
KTA—**T. L. James & Co., Inc.**, Ruston, La. LB $2,477,967. b. conc. 9.45 mi. Sedgwick Co.;
KTA—**Koss Constr. Co.**, 51 Iowa Des Moines Bank Bldg., Des Moines, Iowa. LB $1,575,759. c. conc. 6.75 mi. Shawnee Co. Bids Sept. 2. CD 8/17.

▲ **MONTANA**—State Hy. Comn., Helena,
F & S Constr. Co., 1300 Chicago St., Butte, Mont. LB $873,885. grade, drain 4.38 mi. Butte west road and Brewery By-pass Butte Rd., Silver Bow Co.;
Mont.—**S. Birch & Sons**, Ford Bldg., Great Falls, Mont. LB $141,453. grade, grav., drain, build 25 ft. timber bridge on 4.38 mi. Wilsall-northeast road, Park Co.;
Mont.—**Long Constr. Co.**, Lockwood Flats, Billings, Mont., LB $367,874. grav., bit. surf. 7.34 mi. Lewiston-southeast section of Lewiston-Forest Grove Rd., Fergus Co. Bids Aug. 30.

▲ **Allis-Chalmers Mfg. Co.**, 1126 S. 70 St., Milwaukee, Wis. CA $4,000,000. turbine at Noxon Rapids Dam 30 mi. west of Thompson Falls, MONTANA. Washington Water Power Co., W. 825 Trent St., Spokane, Wash.

BUILDINGS—LB & CA

V. P. Sulzbach, 329 36 St., Sioux City, Iowa, CA general contract, 2½ story, 109x124 ft., rein.-con., brick, marble, stone TEMPLE, 38 and Jones Sts., SIOUX CITY, IOWA. Mount Sinai Temple, 14 and Nebraska Sts., Sioux City, Iowa. Total est. $500,000. Bids July 6, CD 6/24;
Scott Plumbing & Heating Co., 2611 Pierce St., Sioux City, Iowa, CA plumbing work (Sioux City, Iowa);
Nystrom Electric Co., 714 Pearl St., Sioux City, Iowa, CA electrical work (Sioux City, Iowa).

Madsen Constr. Co., 2110 Nicollet Ave., Minneapolis, Minn. LB $757,200. (6 bidders) general contract JUNIOR HIGH SCHOOL, ROSEVILLE (P.O. St. Paul), MINN. Bd. Educ., Independent School Dist. No. 3, T. C. Schultz, clk., Roseville, Minn. Bids Sept. 1. CD 8/2.

▲† **Bennett Constr. Co.**, 3252 Roanoke Rd., Kansas City, Mo. CA $1,203,263. enlisted men's BARRACKS and motor pool facilities, Inv. 23-02856-2, FORT CROWDER, MO. U. S. Eng., Federal Office Bldg., Kansas City, Mo. CD 8/2, under LB.

▲ **Centex Constr. Co.**, 4606 Greenville St., Dallas, Tex. Own Forces. $365,000, 33 DWELLINGS; $425,000, 44 DWELLINGS; $395,050, 42 DWELLINGS, DALLAS, TEX. Grand total $1,185,050. CD 1/11.

Tips Constr. Div., 701 Forest Ave. Rd., Dallas, Tex. CA $675,000 (F) 100 APARTMENT UNITS, DALLAS, TEX. Tips Investment Co., C. R. Tips, 701 Forest Ave. Rd., Dallas, Tex. CD 5/4/54.

▲ **Bates Constr. Co.**, Irwin-Keasler Bldg., Dallas, Tex. CA $1,475,000. Unit No. 1, SHOPPING CENTER, DUNCANVILLE, TEX. T. K. Irwin, Sr., Irwin-Keasler Bldg., Dallas, Tex. CD 10/20.

▲ **Elliott Co.**, 900 N. Fourth St., Jeanette, Pa., CA $621,200, two steam turbine generators; CA $164,285, two condensers, POWER PLANT EXPANSION, GARLAND, TEX. Grand total $1,201,828. City, City Hall, Garland, Tex. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. CD 8/18;
Combustion Engineering, Inc., 200 Madison Ave., New York, N. Y. CA $426,343, two steam generators, (Garland, Tex.).

Arrington-Bradley Building Co., 7445 Park Pl. Blvd., Houston, Tex., CA $653,050, Unit 7, nine DWELLINGS; Unit 8, 11 DWELLINGS, HOUSTON, TEX. Glenbrook Oaks Development Co., 7445 Park Pl. Blvd., Houston, Tex. CD 11/30.

Liberty Co., Court House, Liberty, Tex. rejected bids Aug. 30, COURT HOUSE ANNEX, LIBERTY, TEX. LB $790,000. CD 8/11.

Harmon Constr. Co., Box 1414, Oklahoma City, Okla. LB $779,500. 10 story, bsmnt. OFFICE, for M. S. D. Rentals, E. 8th St. and Echo Ave., ODESSA, TEX. G.O.B.S.C., 1000 N. Lee St., Odessa, Tex. Bids Aug. 24. CD 8/16.

▲ **Mann Constr. Co.**, 302 W. Pitts St., Houston, Tex. CA $1,110,000. HOTEL, COMMERCIAL BLDG., PASADENA, TEX. Williams & Dunlap, Inc., 1200 Bissonnet St., Houston, Tex. ⊕D 8/10.

Rosenberg Investment Corp. & Thomas T. Dean, 111 Kathryn St., San Antonio, Tex. Own Forces. $750,000. SHOPPING-OFFICE CENTER, SAN ANTONIO, TEX. CD 8/16.

Ed Warmack, Fort Smith, Ark., CA $500,000. retail STORE, SWEETWATER, TEX. Sears, Roebuck & Co., Sweetwater, Tex. CD 7/14.

▲ **Mead & Mount**, Denver Club Bldg., Denver, Colo., CA, $1,067,700. general contract 1 and 2 story, brick, steel, HIGH SCHOOL, 34 St. and Ford Ave., GOLDEN, COLO. Jefferson County School Dist. R-1, 1500 Yarrow St., Lakewood, Colo. Bids July 8, awarded Aug. 9. CD 7/26, under LB.

▲ **Rob. E. McKee, Inc.**, Box 1706, Santa Fe, N. M. CA $1,069,300. 3 story, 75x204 ft., 64,000 sq. ft. brick, concrete BANK, ALBUQUERQUE, N. M. Albuquerque National Bank, 123 Central Ave. N.W., Albuquerque, N. M. Ferguson, Stevens & Assoc., 115 Amherst Dr. S.E., Albuquerque, N. M., archts.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 4 Washington — October 6 California

STREETS AND ROADS

September 29, October 5, 6 California

HEAVY CONSTRUCTION—LB & CA

Steve P. Rados, 112 W. Maple St., Monrovia, Calif., CA $683,156 (9 bidders) Proj. 241, Cabrillo Ave. storm drain and Unit 1, of Proj. 76, Torrance, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Aug. 19, awarded Aug. 30. CD 8/25, under LB.

G. E. Kerns Constr. Co., 5574 Atlantic Ave., Long Beach, Calif., CA $755,251 (15 bidders) sanitary sewerage sys., RIALTO, CALIF. City, City Hall, Rialto, Calif. Bids Aug. 29. Currie Eng. Co., Andreson Bldg., San Bernardino, engrs. CD 3/18/46.

▲† **L. C. Anderson**, 3040 Hancock St., San Diego, Calif. CA $1,092,057. addnl. facilities, Increment 1, NOY 86732, Spec. 45843, SAN NICHOLAS ISLAND, CALIF. Eleventh Naval Dist., Dpt. Navy, San Diego, Calif. Awarded Aug. 29. CD 8/4, under LB.

BUILDINGS—LB & CA

▲ **Century Builders**, 900 12 Ave., Seattle, Wash., Day Labor, $1,800,000. 120 HOUSES, ISSAQUAH, WASH. CD 6/23.

Ostruke-Murphy, Inc., 1515 Center St., Tacoma, Wash., CA $739,000 general contract (13 bidders) 84,000 sq. ft., steel frame, JUNIOR HIGH SCHOOL with hot water heating, PUYALLUP, WASH. School Dist. No. 3, PUYALLUP, Wash. Bids Aug. 30. CD 8/12.

Brandon Associated Builders, Box 375, Hayward, Calif. Owner Builds. $715,000. 110-HOME Subdivision, HAYWARD, CALIF.

▲ **Haas & Haynie**, 275 Pine St., San Francisco, Calif., CA $2,500,000, 2 story, 100,000 sq. ft. Kahn's DEPARTMENT STORE, HAYWARD, CALIF. Max Rabinovich, c/o Warnecke & Warnecke, archts., 507 Howard St., San Francisco, Calif.

Harvey A. Nichols, 926 E. Slauson Ave., Los Angeles, Calif., LB $698,700 (9 bidders) La Canada Junior HIGH SCHOOL addn., PASADENA, CALIF. Pasadena Bd. Educ., 351 S. Hudson Ave., Pasadena, Calif. Bids Aug. 30. CD 8/19.

Economy Builders, 707 E. Greenleaf St., Compton, Calif., Owner Builds, $900,000, 150 HOME sub-division, at vicinity Devonshire Hills, SAN CARLOS, CALIF.

▲ **MacDonald, Young & Nelson**, 351 California St., San Francisco, Calif., LB $3,500,000. 1 to 3 story 190,000 sq. ft. OFFICE, 200-car off-street parking, CAFETERIA, etc., SAN FRANCISCO, CALIF. Firemans' Fund Insurance Co., 401 California St., San Francisco, Calif. Bids Aug. 11. CD 8/26, under LB.

CANADA

HEAVY CONSTRUCTION—BA

▲ **Alta., Calgary**—OFFICE—BA 9/15—Triad Oil Co., Ltd., Calgary, rein.-con. office, 7 Ave. and 5 St. West, $1,000,000. Rule, Wynn & Rule, 513 8 Ave. W., archts. CD 6/16.

▲ **Que., Quebec City**—STUDENTS RESIDENCE—Bids Asked—Laval University, Quebec City, 2 story student residences addn., Ste. Foy, $1,600,000. Edouard Fiset, 604 St. Jean St., Quebec City, archt. CD 4/1.

BUILDINGS—SLC

Ont., North Bay—PLANT—Canadian Johns-Manville Co. Ltd., 566 Lake Shore Rd., Port Credit, soon lets contract, substructure for 150,000 sq. ft. plant. Total est. $750,000. CD 6/17.

▲ **Ont., Sarnia**—PLANT—Imperial Oil Ltd., 445 South Christina St., soon lets contract, wax plant, $4,500,000. CD 5/13.

HEAVY CONSTRUCTION—LB & CA

▲ **BRITISH COLUMBIA**—B. C. Dpt. P. Wks., Victoria,
Campbell-Bennett Ltd., 1718 West 5 Ave., Vancouver, B. C., CA, $2,765,925. 7.2 mi. highway Horseshoe Bay-Squamish. Bids Aug. 25.

MANITOBA—Manitoba Govt., Winnipeg,
Tallman Constr. Co., Ltd., 250 Main St., Winnipeg, Man., CA, $750,814. paving about 16.2 mi. Trans-Canada Hy., West Cabot-Frontier Section. Awarded Aug. 24. CD 6/4/51.

▲ **Dominion Bridge Co. Ltd.**, 702 Canada Bldg., Winnipeg, Man., CA, $1,000,000. structural steel supply and erection for steam generating plant, Brandon MANITOBA. Manitoba Hydro-Electric Bd. 213-219 Notre Dame Ave., Winnipeg, Man. H. G. Acres & Co. Ltd., 2135 Culp St., Niagara Falls, Ont., engrs. Awarded Aug. 22.

▲ **Trynor Constr. Co. Ltd.**, 68 Argyle St., Halifax, N. S. CA, $2,104,762. 9,000x200 ft. runway, taxiway, etc. at aerodrome, DARTMOUTH, N. S. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Aug. 19. CD 9/6, under LB.

▲ **E. G. M. Cape & Co.**, 620 Cathcart St., Montreal, Que., CA $1,803,660 (18 bidders) wharf exten. to Sections 50 to 53, Montreal Harbor, MONTREAL, QUE. National Harbors Bd., Parliament Bldgs., Ottawa, Ont. Awarded Aug. 29. CD 7/15, under LB.

BUILDINGS—LB & CA

▲ **George Hardy Ltd.**, 163 Wicksteed Ave., Toronto, Ont., CA, $1,500,000, 200 HOUSING units for married personnel, Kingston Army Camp, KINGSTON, ONT. Central Mortgage & Housing Corp., 40 Eglinton Ave. E., Toronto, Ont. Awarded Sept. 1. CD 3/9/53;
H. J. McFarland Constr. Co., Ltd., Box 559, Picton, Ont., CA, $400,000. roads servicing 200 new housing units, (Kingston, Ont.).

Alex. I. Garvock Ltd., 217 Sparks St., Ottawa, Ont., CA, $730,000. combined mess for R.C.A.F. Station, OTTAWA, ONT. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. Bids July 28. CD 7/13.

▲ **Foundation Co. of Canada Ltd.**, 1220 Bay St., Toronto, Ont., LB $3,067,770 (10 bidders) 2 story, part bsmnt., 190x440 ft., steel WOMEN'S BLDG., Canadian National Exhibition, TORONTO, ONT. City, City Hall, Toronto, Ont. Bids Aug. 22. CD 7/25.

▲ **Pentagon Constr. Co. Ltd.**, 5005 Namur St. Montreal, Que., CA, $1,000,000, 1 story, mezzanine steel, brick, block PLANT, MONTREAL, QUE. Crown Cork & Seal Co., Ltd., 925 Panet St., Montreal, Que. Luke & Little, 1515 Crescent St., Montreal Que., archts. Alex. G. Moore, 940 Ogilvy Ave., Montreal, Que., engr. Awarded Sept. 2.

ALASKA

BUILDINGS—LB & CA

J. B. Warrack, 407 Third Ave. W., Seattle, Wash. LB $587,000 (6 bidders) 1 story, 20,000 sq. ft. frame Turnagain-by-the-Sea SCHOOL, ANCHORAGE, ALASKA. School Bd., Anchorage, Alaska. Bids Aug. 30.

(Proposal Advertisements see pp. 72 to 76)

UNIT PRICES

Dartmouth, Mass Extends Water Mains

To provide water supply and fire protection to its Russells Mills section, Dartmouth, Mass., is building 3.6 mi of asbestos-cement water mains of which 63 percent is 12-in., 33 percent is 8-in. and 4 percent is 6-in. pipe. Fay, Spofford & Thorndike, Boston, is the consulting engineer.

Contract went to James A. Munroe & Son, the second bidder because of his more favorable completion date.

Cl. 150, J-M Transite pipe and Simplex couplings (AWWA-C400-53T) are to be used, with all materials to be furnished by the contractor.

Wages to be paid include $1.80 for common labor, $1.90 for pipe layers, and up to $3.40 for skilled trades.

The successful bid was 24 percent under the high of ten and just over one percent above the low bid. Bidders include:

1 Estate of Rocco Germane, Fall River, Mass. $101,585*
2C James A. Munroe & Son, North Attleboro, Mass. 102,723
10 C. L. Guild Constr Co., E. Providence, R. I. 127,507
EE Fay, Spofford & Thorndike, Boston, Mass. 115,940

Bids: 8-15-55 Items	Unit	Quantity	Unit Prices 1	2C
Asbestos cement pipe, 12"	lf	12,500	4.30	4.51
8"	lf	6,500	2.85	3.04
6"	lf	700	2.25	2.35
Gate valve & box, 12"	ea	8	175.00	168.15
8"	ea	7	90.00	87.75
6"	ea	25	74.00	64.40
CI river crossing, 8"	lf	60	10.00	22.60
CI hyd branch & blowoff, 6"	lf	250	3.00	2.69
Fire hydrants	ea	22	165.00	146.75
Addl CI fittings	lb	2,000	0.35	0.22
Excav earth, below grade	cy	100	2.00	1.00
Addl for pipe trench exc & bf by hand	lf	200	1.50	1.00
Rock	cy	600	10.00	7.00
Selected material	cy	300	0.75	0.90
Excav & backfill, misc earth	cy	50	0.50	1.00
Lumber & sheeting, lip	Mbm	1	25.00	150.00
Conc backing for pipe lines	cy	25	20.00	8.00
Cork & pitch frostproofing	cf	200	0.50	1.00
Bit pavement	sy	6,000	1.50	1.40
Temporary surfacing	sy	200	1.00	1.00
Traffic police	manda	5	20.00	16.00
Disinfecting water system	ls	job	400.00	430.00
Prep at site, cleaning up	ls	job	190.00	200.00

Completion time: 60 calendar days
Liquidated Damages: $25 per day

* Completion time given in bid 180 days, reason award made to second bidder on completion bid of 60 days.

Street Paving, Traffic and Street Lights, N Dak

A rush paving and lighting job in Fargo, N. Dak. requires that Northern Improvement Company complete its $736,566 contract in 150 16-hr working days and use high early strength cement for part of the work.

This involves over two miles on Front Street which is to be widened and paved with 9-in. concrete. Installation of street lighting and traffic signal systems and other operations related to the whole job complete this job for the North Dakota State Highway Department, W. H. Rogers, Jr., state highway engineer, P. K. Lewis, resident engineer.

The owner furnishes cast iron pipe, valves and fittings for relocating hydrants.

Minimum cement content for concrete is six bags per cu yd and concrete must develop 3,500 psi in 28 days.

The successful contractor was less than 1 percent under the low bidder and almost 11 percent below the high of four bidders which include:

1C Northern Improv. Co., Fargo, N. D. $736,566
2 Schultz & Lindsay Con., Co., Fargo, N. D. 740,417
4 The Haggart Const. Co., Fargo, N. D. 824,111

Bids: 8-24-55 Items	Unit	Quantity	Unit Prices 1C	2
Roadway excav	cy	24,647	$1.40	$1.50
Water for compaction	Mgals	155	1.00	1.50
Subbase	t	6,937	1.00	1.50
Sand subbase	t	3,579	1.00	1.60
Air entrain PC conc pav	sy	62,540	4.39	3.75
High early strength	sy	9,830	4.60	4.50
Portland cement	bbl	23,452	5.15	4.50
HES Portland cement	bbl	3,686	4.15	5.90
Remov exist RC box culv	ls	job	750.00	1,000
RCP culv, 72"	lf	288	45.00	40.00
Reinf conc retain wall	ls	job	1,800	2,600
VCP sewer, 8"	lf	100	3.00	5.00
Comb conc curb & gutter	lf	20,750	1.65	2.20
High early strength	lf	392	1.80	2.70
Conc sidewalk	sy	9,655	3.00	4.60
Adjust manhole castings	ea	101	40.00	70.00
Adj inlets castgs to grd	ea	113	18.00	50.00
Relocate hydrants	ea	25	150.00	170.00
curb cocks & water bxs	ea	68	70.00	40.00
Remov exist st light sys	ls	job	1,500	1,575
2" galv conduit screw coupl	lf	8,324	0.60	0.63
4 #4 sgl cond cable laid in common trench	lf	25,321	0.87	0.92
Furn street light stds	ea	204	336.00	353.00
Install	ea	204	78.10	82.00
Furn street light feeder point	ea	10	206.00	216.00
Install	ea	10	70.00	73.50
Traf contr signal sys	ls	job	30,200	31,710
#10 single condtr cable in condult	lf	15,620	0.10	0.11
Reconnect exist fire alarm boxes	ea	10	10.00	10.50
Monument castings	ea	5	30.00	25.00

Completion schedule: 150 16-hour working days
Liquidated damages: $75 per day

Alaska Road Prices Mixed

Averages unit bid prices on selected classes of road construction in Alaska are the lowest in six years on excavation, the lowest except for 1953 on borrow and up slightly from their 1954 low on crushed base and plant mix. These prices supplied by the Commissioner of Roads for Alaska are shown in the accompanying table.

Item	Unit	1953	1954	1955 1st half
Clearing & grubbing	ac	$289.00	$155.00	None*
Excavation, unel	cy	0.89	1.26	0.75
Borrow	cy	0.64	0.98	0.72
Crushed base	t	1.86	1.65	1.79
Plant mix	t	6.35	6.00	6.17

* Very light clearing, not representative of normal

Item	Unit	1950	1951	1952
Clearing & grubbing	ac	$966.67	$766.67	$300.00
Excavation, unel	cy	1.35	1.55	1.04
Borrow	cy	0.86	1.04	0.80
Crushed base	t	1.90	2.10	1.90
Plant mix	t	7.50	6.55	7.00

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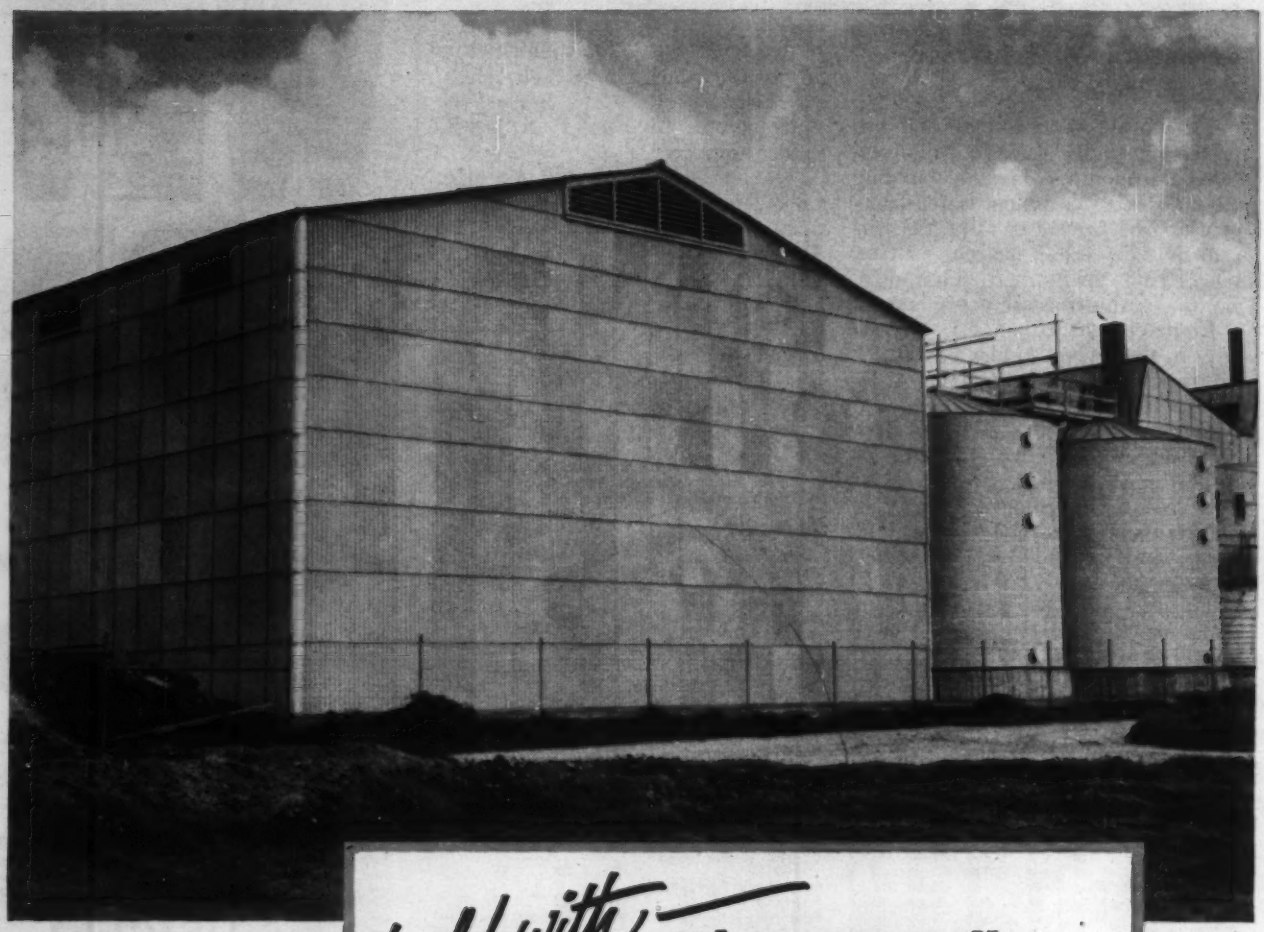

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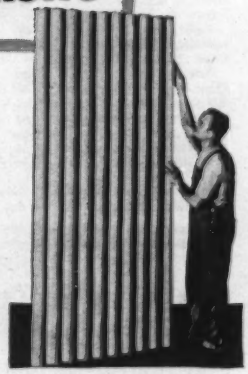

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Turnpike Projects Are Scheduled for Fall

But tightness of the bond market raises doubts whether they can all be sold now at reasonable interest rates

For the first time in three months, new turnpike issues are in the news again. Last week, the Richmond-Petersburg Turnpike Authority asked an underwriting syndicate headed by the well-known New York firms of Lehman Brothers, Smith, Barney & Co., and Blyth & Co., Inc., to submit a bid by Sept. 28 on $69 million of 40-year bonds.

The proposed route would extend 35 mi from a point south of Petersburg, Va., to a point north of Richmond, saving considerable time for through traffic. A feasibility report has been made by Parsons, Brinckerhoff, Hall & Macdonald and Coverdale & Colpitts.

• **Illinois pikes**—Gov. William G. Stratton of Illinois has just announced that the long-postponed $400-million issue to finance three toll roads in the Chicago area would come to market in mid-October. Some Wall Street observers are skeptical whether this king-sized issue can be sold in today's tightening bond market at an interest rate the Illinois toll-road agency could accept. The Illinois issue would be the biggest toll offering in history.

Estimated construction and land cost of the project is figured at $353 million, with financing costs and interest during construction making up the rest. Due to increased prices of materials, engineers figure the project will cost about $16 million more than when it was first proposed a year ago. It has since been delayed by lawsuits.

The Illinois Toll Highway Commission plans about 193 mi of toll roads. They are:

(1) A belt highway around the south and west sides of Chicago, starting near the Indiana line, and running to the Wisconsin line.

(2) A turnpike from central Chicago, going northwest to Elgin and Rockford and reaching the Wisconsin line near Beloit.

(3) A pike from the end of the Cook County Expressway going west to Aurora. (This is the first stage of a projected toll road to the Iowa line.)

• **Texas Turnpike**—The other possibility on the near horizon is the 223-mi Dallas Houston pike, which would be built by the privately-owned Texas Turnpike Co. A $130-million issue is scheduled for early October. Here again, many Wall Streeters are skeptical whether the issue can be sold at a reasonable interest rate in today's market. The bonds would be exempt from federal income tax, but property of the private company would be subject to local property taxes, unlike property of public agencies.

The Texas Turnpike Co. tried to sell its bonds early this year and found there was not enough demand. Since then, it has consolidated with private backers of a proposed pike between Dallas and Waco, which would have been competitive. In order to retain its exclusive franchise to the Dallas-Houston route, Texas Turnpike Co. has started some work. All major contracts have been awarded.

Meanwhile, the Texas Turnpike Authority, the public agency that has already financed a turnpike between Dallas and Houston (ENR June 23, p. 78) has called for a feasibility study to decide whether the state should build a Dallas-Houston toll road.

Several other turnpike projects are talked of as possibly coming to market during the fourth quarter of this year, but the schedule is far from certain. Among them are: the "crossbar of the T" section of the Pennsylvania Turnpike's Northwestern Extension (ENR Sept. 8, p. 76); the Indiana North-South Turnpike; and the South Louisiana Turnpike.

West Coast Builders Decide To Build in Co-operation

Seven West Coast builders have decided their houses will sell better if they build homes together in a single large development, giving prospective buyers a wider choice of styles. So they are working together at Del Cerro, a 1,500-unit development of higher-priced homes in San Diego.

Originator of the idea is the construction firm of Jackson & Scott, Inc. J&S has asked other builders to come in. Says J&S' R. M. Jackson:

"It is not possible for one man or one firm to be original on 1,500 homes. The well runs dry. . . . Jackson & Scott found that when we are building homes adjacent to other builders we pick up good ideas. The other builders have picked up ideas from us. The proximity means that all builders are engaged in a competition of craftsmanship which tends to raise the standards of all."

(*B&F continued on page 70*)

A Tractor Builder Struts Its Stuff

The practice of putting on mass field demonstrations for potential customers and the business press is a growing one in the construction equipment field. Last month, little American Tractor Corp. put on a "Tractorama" at its plant in Churbusco, Ind., near Fort Wayne, to introduce its 1956 models. The show was intended to demonstrate that medium-to-small equipment can be just as efficient in its class as the king-sized machines, particularly when equipped with torque converters and hydraulic transmission. American Tractor will follow through with over 100 demonstrations by distributors and dealers around the U. S.

State Highway Officials Seek Funds to Match Federal Money

Highway officials of two states have recently indicated that their legislatures will have to find new sources of revenue before June 30, or else lose unmatched federal highway funds.

State Highway Commission Chairman Virgil Smith of Indiana recommends a 2 cents per gallon increase in the state gas tax. He points out that Indiana has been unable to match $9.5 million of federal road funds available since October 1952. This money will be lost to the state if not matched by June 30. The total backlog of unmatched federal highway money available to Indiana is over $65 million.

In West Virginia, State Road Commissioner Burl A. Sawyers notes that the state will lose almost $2 million in unmatched grants on June 30 if it doesn't find the money. The total credit available to West Virginia but not yet matched is $19 million.

Business Capital Spending May Gain 4% Over Last Year

The outlook for industrial and commercial construction during the rest of 1955 is still improving. Businessmen expect spending for plant and equipment to increase steadily to a record rate in the last quarter.

According to reports received in late July and August by the Securities & Exchange Commission and the Dept. of Commerce, business will spend $27.9 billion this year, about 3% more than expected at the start of 1955. If programs for the second half materialize, 1955 outlays will be 4% above last year and only 1% below the all-time high in 1953.

The survey indicates that the seasonally adjusted annual rate was $25.6 billion and $27.2 billion during the first and second quarters, respectively. It estimates spending of $29 billion and $29.7 billion in the third and fourth quarters.

About half of the $4 billion estimated increase in the annual rate from the first to the fourth quarter is accounted for by manufacturing, particularly durable-goods industries. Commercial firms, railroads, and utilities also show a sharp uptrend.

For the full year, manufacturers plan to spend $11.2 billion, up 1% from last year. All the gain over last year is accounted for by durable-goods firms, which plan to spend nearly $5.4 billion, up 5%. Makers of nondurables will spend about $5.8 billion, down 2% from last year. Commercial firms plan to spend $8.9 billion, up 8%—the biggest gain for any group. Public utilities plan spending of $8.9 billion, up 5%. Non-rail transportation companies are expected to spend about $1.6 billion, a gain of 3%. The railroads plan to spend $910 million, up 7%. Mining firms are scheduling outlays of $910 million, down 8%.

Business Briefs . . .

• **New construction** put in place in August reached a monthly high of almost $4 billion. For the first eight months, dollar volume is a record $27 billion—13% above last year. Private work accounted almost all of the increase, with private homebuilding providing over 70% of the dollar gain.

• **Houston** led all metropolitan areas in dollar volume of contracts over $100,000 for manufacturing plants during the year ended June 30, according to the annual survey by Commonwealth Edison of Chicago's Territorial Information Department. The total was $48,500,000, with Chicago only an eye-lash behind. Third comes the Philadelphia-Camden area with $40.9 million. For the 10-year period ended June 30, Chicago leads all areas, with Philadelphia-Camden just behind.

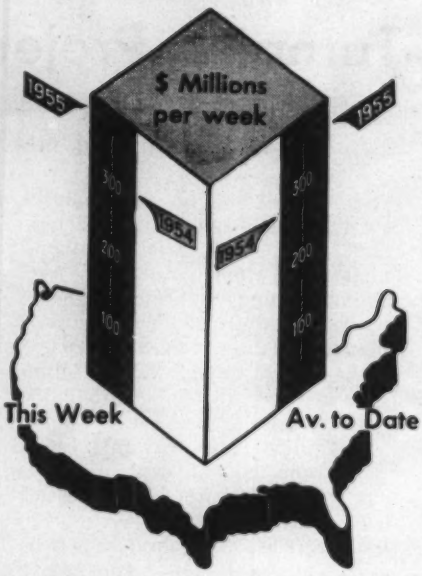
• **U.S. railroads** must spend $20 billion for construction in the next decade if they are to keep up with estimated needs, according to James M. Symes, president of the Pennsylvania R. R. That would be twice the amount they spent during the last 10 years. Symes estimates freight hauling by rail will be up 53% in 1965 on a ton-mile basis over 1954.

• **Gas tax boost for flood relief** has been voted by the Pennsylvania legislature. The tax has been raised 1 cent to 6 cents per gallon. This is expected to raise $54 million additional in the next two years, of which $45 million will go to flood-damaged roads, streets and bridges.

• **Luria Steel** & Trading Corp., of New York, has bought the Hunter Aluminum Prime Window Division of F. C. Russell Co., Cleveland. The business will be continued by Luria Building Products, Inc. other Luria subsidiaries are: Luria Engineering Co., of Bethlehem, Pa., designer and builder of standardized steel structures; Luria-Cournand, Inc., of Harve de Grace, Md., structural plastics maker; and a steel warehouse firm, Luria Steel Supply Co.

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

(millions of dollars)	This Week	Cumulative 37 wks 1955	1954	% chge
By Ownership				
Federal	$39.1	$1,232.2	$883.3	+39
State and municipal	119.5	3,850.5	3,500.1	+10
Total public	158.6	5,082.7	4,383.4	+16
Total private	222.6	8,352.4	5,870.0	+42
U. S. Total	$381.2	$13,435.1	$10,253.4	+31
By type of work				
Waterworks	$8.6	$195.5	$159.7	+22
Sewerage	24.8	289.2	270.3	+7
Bridges	2.5	332.2	360.7	−8
Highways	43.1	1,559.2	1,332.8	+17
Earthwork, waterways	13.6	375.9	199.0	+89
Buildings:				
Public, excl. hsg.	51.8	1,259.7	1,256.9	+0.2
Public housg.	1.6	216.6	173.3	+25
Private housg.	138.5	4,513.2	3,052.3	+48
Commercial	40.4	1,234.0	975.0	+27
Industrial	30.6	1,933.3	1,368.1	+41
Unclassified	25.7	1,526.3	1,105.3	+38
U. S. Total	$381.2	$13,435.1	$10,253.4	+31

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(millions of dollars)	Week of Sept. 8	Cumulative 36 Wks 1955	% Chge '54-'55
Corporate securities	$50.0	$2,292.2	+11
State and municipal:			
All except housing	38.1	2,882.4	−22
Housing	...	72.0	−21
Federal loans	2.0	90.2	+10
Federal aid	...	853.5	+27
Total nonfederal	$90.1	$6,190.3	−6
Federal appropriations:			
In U. S.	...	$3,379.7	+63
Outside U. S.	...	84.6	+155
Total new capital	$90.1	$9,654.6	+11

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	9/8	672.91	323.47	141.07
	9/1†	672.80	323.41	141.04
Building cost	9/8	479.39	259.14	136.27
	9/1†	479.21	259.05	136.22
Volume	Aug.	508	207	147
	July	699	284	202

† Official ENR Indexes for Sept.

A Bricklayer Shows the Way

H. W. Mathews, about to retire as an exec, tells what he found to be keys to good labor relations.

Some years ago, Harry W. Mathews, journeyman bricklayer, swapped his overalls and trowel for a crisp white shirt and mahogany desk.

Now about to retire, he's learned a lot about what makes construction men tick. And he's used this knowledge as a tool to mold a productive team out of the labor forces of his boss, F. M. McGraw & Company, Hartford, Conn., engineering and construction firm.

Tact, he says, is one of the most important qualities in supervisory personnel—and one that's most frequently lacking. His big plea is to treat people "as individuals with feelings."

From Clifford S. Strike, company president, down through the rest of the company's executives, it is agreed that Mathews' strongest points are his knowledge of labor unions and understanding of the building trades mechanic himself.

One executive said that despite Mathews' high management position, "he has the uncanny ability of getting men to work with him rather than against 'im."

Now 66, and planning to retire this fall, Mathews is assistant to the president.

• **Be friendly**—He obtained his first construction job in 1910 as an apprentice bricklayer in Baltimore, Md. Training for his present position started at that time when he decided, "if you do a good job it helps make money for the company, and anyone that makes money for a company is bound to be noticed."

He was right, for during his 18 years as a journeyman, following four years of apprenticeship, Mathews was noticed by the man who was to become president of McGraw. Strike brought him to the newly-formed McGraw firm in 1932 and made him a bricklayer foreman.

A rapid and fluent talker, Mathews says that to be an efficient boss "you've got to have the genuine friendship of the men working under you."

This is gained in many ways, but Mathews believes that the most important thing is to treat the men with consideration and respect. Although some of them may be pretty rugged, he emphasizes that that's "no reason for needlessly pushing them around." Be square and be friendly, he urges, and adds that "making friends on the job is one of the cheapest ways to get production."

• **Consideration**—He is also a firm believer in the right of privacy, particularly when it involves the dismissal of an employe.

"I've seen how many foremen handle that chore, but I handle it only one way. When I see a man is not doing a job properly or is unqualified I give him the bounce in private. I'll wait until lunch, quitting time or some other opportune moment and call him over to me to give him the bad news quietly. I can't see the sense of exploding and giving him the heave-ho so everyone on the job knows it. It is embarrassing to all concerned that way. By doing it quietly you eliminate the inefficient without giving everybody else the jitters."

But Mathews also makes it apparent to men on a project that he wants to keep all the men whenever possible. In cases where a working crew is only as fast as its slowest member, Mathews will try to put a too-slow worker on a job that will not retard a crew or phase of a job.

He says it is surprising to see what happens right along the line when this is done. The guy who was taken off the crew appreciates that you kept him on when you didn't have to and so do the rest of the men.

"And in these days of unions, when all men are 'brother' to each other, that helps a lot in keeping a job on schedule. Before you know it, you have the local's business agent on your side—and when that happens, production rolls along."

Perhaps the time it paid the biggest dividend was when McGraw contracted to dismantle and rebuild U. S. Steel's 80-inch hot strip mill in Gary, Ind.—one of the largest in the world—in 28 days. With Mathews as project manager and with 700 men working two 12-hour shifts seven days a week, the job was completed in 27 days, 12 hours.

• **Up the ladder**—Mathews went up the ladder from bricklayer foreman to general foreman, construction supervisor, project manager, job sponsor—and then to his present position which he attained six years ago.

To this day, however, he still carries a bricklayer's union card. Combined with his knowledge of labor unions and bricklaying, it's often come in handy.

It served him well, for example, on a bricklaying operation on a large construction job that was progressing too slowly. After watching the crew closely, Mathews decided that the corner man responsible for moving the marker line up on the wall was the delaying factor.

"That night," he said, "I called the union business agent and told him to be on the job first thing in the morning. He came before work started. I told him about the corner man, announced I was removing him and that I would take his place. I also told the agent to stay and watch closely until quitting time. I took the corner and worked steady—no pushing, just steady but easy working.

"At 4:30 the agent counted the bricks and instead of 300 bricks laid as in previous days, each man had laid 600. We put a new corner man on and solved the problem. And the payoff was that the other men said they were glad of the change because

(*Continued on page 72*)

the steady operation made the day go faster."

• **Retirement**—Mathews' retirement may not last long—he's tried it before. First time was in 1951, when he went to Arizona where he could play golf and watch the big league ball clubs in training. But two months of inactivity were enough, and when president Strike phoned him one morning and said there was a job waiting in Ohio, Mathews "took the first plane out of Arizona."

Since starting in construction, Mathews has worked about 300 jobs. He has served in a supervisory capacity on approximately 100, the last one being restoration of the steeple on the Old North Church in Boston, Mass. (ENR, July 14, p. 27.)

When he quits, he's going to Baton Rouge, La., where he'll build his own home. He'll thus take up again the trade that started his career—for the house he plans to build will be made of brick.

Carpenter Seeks Damages Under Right To Work Law

One of the first suits to arise under South Carolina's right to work law has been filed in Columbia, S. C., by Dalton Bradley, a carpenter.

Demanding $55,000 as actual and tentative damages, he charges that the M. B. Kahn Construction Co. and the United Brotherhood of Carpenters and Joiners of America denied him the right to work.

Bradley contends he was fired because he declined to join the union. He claims that there were still four weeks of work left to be done on the job he was working on and that he hasn't yet been able to obtain other work as a carpenter because he is not a member of the union.

Use of Rollers an Issue In Contract Negotiations

Use of rollers and a new termination date were the major stumbling blocks to a new agreement with Local 118 of the painters union in Louisville, Ky.

Demanding a wage boost of 25 cents an hour, union members went on strike when their old contract expired without a new one.

A spokesman for the Louisville Painting & Decorating Contractors Assn., representing 15 firms in the negotiations, said core of the trouble was objection to rollers, a new termination date of April, and increased travel allowances.

NLRB Keeps "Hot Cargo" Hot

Board still disagrees on validity of "hot cargo" clause but rules it's no defense to a secondary boycott charge

When "Union Label Week" came to an end last Saturday, two of the big questions still unanswered were the status of "hot cargo" clauses in union contracts and the role they play in secondary boycotts.

The National Labor Relations Board had taken another look at the problem within the construction industry just before the week began but left a lot for the courts still to decide. In two cases directed at the carpenters' union and involving efforts to limit the use of nonunion materials, the board ruled that attempts to enforce "hot cargo" clauses by inducing employes to engage in a secondary boycott are unfair labor practices, regardless of the validity of the clauses themselves.

But the board was split as far apart this time as it has been in the past on the ticklish issue of whether the clauses themselves—or even union working rules that accomplish the same end—are illegal. It still leaves in a twilight zone both the legality and enforceability of "hot cargo" clauses, as well as the concept of "public policy" as applied to secondary boycotts.

• **Conflicting views**—The opposing views of the board shape up like this:

• It is not within the province of the NLRB to declare such contracts contrary to public policy. Although valid as between the parties, they can't be enforced by appeals to employes. Such appeals are contrary to public policy and constitute an unfair labor practice.

• A "hot cargo" clause is just a subterfuge to get around the law and is neither valid nor enforceable.

• Such clauses are valid and enforceable and the board has no right to repudiate them for the employer. Their enforcement is not prohibited by the secondary boycott provisions of the law.

As the board pointed out, the problem may arise not only through use of a "hot cargo" clause, but also through a contractor's agreement to abide by union working rules, or even through adherence to local industry custom and practice. Under the majority rule—which is a combination of the first two views—the net result is the same. None of them gives legal immunity to a secondary boycott.

• **The argument**—In the first of the two companion cases before the board, the Los Angeles County District Council of Carpenters and Local 1976 unsuccessfully argued that the existence of a "hot cargo" clause—lawful as between the parties—makes a secondary boycott legal. With this, dissenting members Murdock and Peterson agreed. To hold otherwise, they said, "encourages employers to violate their lawful agreements with labor organizations. Indeed it tells them that they may freely take whatever the union has given in collective bargaining to secure such an agreement without fear of ever having to pay the quid pro quo. . . . It forbids a union . . . to assume that the employer meant what he said when he agreed in advance that his employes would not have to handle nonunion materials. Such a decision gravely . . . affects the collective bargaining process, which it is the duty of this board to promote and encourage."

In the lead opinion, chairman Farmer and member Leedom conceded the legality of "hot cargo" clauses insofar as the board is concerned but concluded that an attempt to induce employes of the contracting employer to refuse to handle goods of another employer is contrary to the express language of the Taft-Hartley Act and is an unfair labor practice. Member Rodgers concurred in the result but reasoned that such clauses are unenforceable anyhow, because they are merely an effort to obtain "advance immunization against unfair labor practice findings."

• **Rules and custom**—In the second case, the Carpenters District Council in Cleveland, Ohio, and its Local 11 were accused of engaging in a secondary boycott by inducing members not to install prehung and nonunion doors in a Rocky River home project.

Although no "hot cargo" clause was involved, a majority of the board (Farmer, Rodgers and Leedom) ruled against the union. Pointing out that such clauses do not justify a secondary boycott, they said: "For the same reasons, . . . a finding of a violation of the act is not precluded here either by the fact that the subcontractors . . . were obligated to observe union working rules or by the fact that it was the industry custom and practice in the area to hang conventional doors."

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: September 22, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 22nd day of September 1955, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, N. F. Ronan, Acting District Engineer, 353 Broadway, Albany, N. Y.						
Albany	C.T. 55-13	New York State Thruway: Catskill Section-Sub. 3A (Albany Div. Maint. Bldg. Site)	....	Grading, Paving and Misc. Work	$5,500 Plans $10	$100,000
Greene	C.T. 55-12	New York State Thruway, Catskill Section-Sub. 7 (Catskill Maint. Bldg. Site)	....	Grading, Paving and Misc. Work	$3,000 Plans $10	50,000
DISTRICT No. 3, Wm. Robinson, District Engineer, Weigh Lock Building, Syracuse, N. Y.						
Onondaga	O.T. 55-9	New York State Thruway, Ontario Section-Sub. 8A	....	Furnish and Install 8,200 L.F. Chain Link Fence	$2,000	36,000
	M.T. 55-10	Mohawk Sect.-Sub. 8B		16,000 L.F. Cattle Wire Fence	Plans $10	
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, 65 Court Street Buffalo, N. Y.						
Chautauqua	E. T. 55-7	New York State Thruway, Erie Section-Sub. E-2B	4.88	Two Crse. Cem. Conc. Pavt. 2 @ 25'=4.86 Mi.	$215,000	3,908,000
	S.T. 55-9	(West Forest Road to Brockton) Walker Rd., Pecor Rd., Mathews Rd., Lake Ave. & Acc. & Marginal Roads	(2.40) (Acc.)	Bit. Mac. Pen. Meth. Asp. Type 1=1.02 Mi. Asp. Conc. Ty. 2B=0.22 Mi. Gravel Surf. Treat.=0.97 Mi. Misc. Work=0.21 Mi. 6 Sep. Comp. I-Beam 144.5', 271.7', 330', 188.5' 182.5' and 138' 1 Reinf. Conc. Arch 20.7'	Plans $50	
Chautauqua	E.T. 55-9	New York State Thruway, Erie Section-Sub. E-3A (Brockton to Pomfret Town Line) (Sep. of Grades with the New York Central, Nickel Plate and Pennsylvania RR'S near Swede Rd.)	0.23	Two Crse. Cem. Conc. Pavt. 2 @ 25'=0.13 Mi. Cem. Conc. Pavt.=0.10 Mi. 2 Brs. Comp. I-Beam @ 432' ea.	$78,000 Plans $15	1,416,000
Erie	E. T. 55-8	New York State Thruway, Erie Section, Sub. E-6B	4.48	Two Crse. Cem. Conc. Pavt. 2 @ 25'=4.37 Mi.	$232,000	4,225,000
	R.C. 55-72	(Cain Rd. to Evans Ctr.-Eden Rd.) Angola-Brant-	(2.94)	Cem. Conc. Pavt.=0.07 Mi.	Plans $100	
	S.T. 55-10	Farnham, Angola-Evans Center, S. H. 642, Cain Rd., Pontiac Rd., Ryther Rd., Gowans Rd., Evans Ctr.-Eden Rd. & Versailles Plank Rd.	(Acc.)	Asp. Conc. Opt.=2.94 Mi. Misc. Work=0.04 Mi. 4 Hy. Seps. Comp. I-Beam 356', 432', 330' & 320' 2 Brs. Comp. I-Beam @ 278' ea. 3 Brs. Twin Box @ 20' ea.		
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
Jefferson	D.A. 55-2	Dry Hill Access Road Proj. D-AD-4(2)	1.15	Asp. Conc. Opt.=1.14 Mi. Misc. Work=0.01 Mi. Misc. Work=0.01 Mi.	$3,000 Plans $10	51,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Ulster	C.T. 55-11	New York State Thruway, Catskill Section-Sub. 3B (Kingston Maint. Bldg. Site)	....	Grading, Paving and Misc. Work	$3,500 Plans $10	63,000
Westchester	H.T. 55-7	New York State Thruway, Hudson Section-Subs. 9A, 10 & 11 (New York City Line to Tappen Zee Br., East Approach)	....	Furnish and Install 25,900 L.F. Chain Link Fence 2,750 L.F. Woven Wire Fence	$7,000 Plans $10	118,000
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Little East Neck Road, Babylon, L. I., N. Y.						
Suffolk	SMSP 55-2	Sunken Meadow Spur Parkway Contract No. 7	0.95	Relocation of Stream Channel	$12,000 Plans $10	208,000
Nassau	FASS 55-7	Peninsula Boulevard, Cont. 4 (Lexington St. to Southern State Pkwy.) Proj. S-319(5)	1.32	Asp. Conc., Opt.=1.13 Mi. Misc. Work=0.19 Mi. 2 Ped. Overpasses I-Beam 124.7' ea.	$55,000 Plans $15	925,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Read the Official Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: October 5, 1955

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m. Eastern Daylight Saving Time, the 5th day of October 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract:

For the provision and installation of all Plumbing Work required in connection with construction of the North and South Portal Buildings and Cut and Cover Tunnel Sections and Fire Protection Systems for the T. J. Evans Tunnel, Contract 518-D, part of the Northeastern Extension of the Pennsylvania Turnpike in Lehigh and Carbon Counties, Commonwealth of Pennsylvania, the project being situated as follows:

The South Portal Building and adjacent Cut and Cover Tunnel Section is approximately 2,703 lineal feet northwest of the center line of Legislative Route 39119 between Turnpike Stations 1342+50 and 1343+76.31 in Washington Township, Lehigh County, and the North Portal Building and adjacent Cut and Cover Tunnel Section is approximately 4,582 lineal feet southeast of the center line intersection of the Turnpike and the Lehigh and New England Railroad between Turnpike Stations 1385+14.95 and 1386+29.44 in East Penn Township, Carbon County.

Bids are to be submitted on a lump sum basis.

Copies of plans, specifications and other contract documents are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on September 8, 1955. Plans, specifications and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy.

Plans and contract documents for this section, exclusive of specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty-five (25) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
26 August 1955

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4515) will be received at Denver, Colorado, until October 27, 1955, for furnishing one Line Graphic Control Board, with conversion parts for existing recorders, for Folsom Power Plant, Central Valley Project, California. Delivery is desired within 300 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Prequalification Date: September 22, 1955

Board of Education
Bureau of Construction

Notice Re Prequalification Forms For Contractors.

NOTICE IS HEREBY GIVEN THAT THE Director of the Bureau of Construction, Fourth Floor, 42-15 Crescent Street, Long Island City 1, N. Y., will receive applications for prequalification of bidders, from contractors who may wish to submit bids for the proposed hereinafter specified contracts, as follows:

For (1) general construction, (2) plumbing and drainage, (3) heating and ventilating, (4) electrical work and lighting fixtures, for "Modernization" of Public School 82, Macombs Rd., and West 176th St., The Bronx, for New "Addition" to and "Modernization" of existing Junior H.S. 136, Fourth Avenue and 40th Street, Brooklyn, for "Modernization" of Public School 64, 9th Street and Avenue "B", Manhattan.

Prequalification application forms can be secured from and must be submitted to the Director, Bureau of Construction office, 4th Floor, Room 402, 42-15 Crescent Street, Long Island City 1, New York.

The time for submitting prequalification application forms for the above contracts will expire on Thursday, September 22, 1955.

WILLIAM H. CORREALE
Director
Dated: September 6, 1955.

Bids: September 27, 1955

The Mississippi River Bridge Authority
Contract No. 4

INVITATION TO TENDER

The Mississippi River Bridge Authority of the State of Louisiana invites proposals for the construction of the Superstructure of the River Crossing for the Greater New Orleans Bridge over the Mississippi River at New Orleans, Louisiana. Sealed proposals for the Work described will be received by The Mississippi River Bridge Authority in the office of the Authority, 422 City Hall Annex, New Orleans, Louisiana, until 10:00 a.m. Central Standard Time, September 27, 1955. Proposals will not be received after this hour. At 10:00 a.m. of the same day and date, the proposals will be publicly presented, publicly opened and publicly read in the Commission Council Chamber, City Hall.

This Contract No. 4 covers the furnishing of all materials for and the construction of the River Crossing Superstructure of a four-lane highway bridge over the Mississippi River in the vicinity of Thalia Street in New Orleans and Bringier Street in Gretna.

A fuller description of the work to be done and of the requirements, provisions, and details thereof is given in the Contract Drawings, Contract Documents and Specifications, copies of which are on display in the office of the Authority, Room 422, City Hall Annex, New Orleans, Louisiana, and in the offices of the Engineers, Modjeski and Masters, 2400 Canal Street, New Orleans, Louisiana, and State Street Building, Harrisburg, Pennsylvania, or may be obtained from said latter office upon the deposit of Twenty Dollars ($20.00) per set. Deposit checks should be made payable to Modjeski and Masters.

No Proposal will be received unless accompanied by a certified check satisfactory to the Authority drawn upon a National or Louisiana State Bank or Trust Company having an office or place of business in New Orleans, Louisiana, and payable to the order of The Mississippi River Bridge Authority for the sum of Six Hundred Thousand ($600,000.) Dollars as security for the proper execution of the Contract. Such check must not be enclosed in the sealed envelope containing the bid but must be delivered to the office of the Authority. Proper receipt for the deposit will be given by the Authority.

THE MISSISSIPPI RIVER BRIDGE AUTHORITY
Neville Levy, Chairman

Bids: September 22, 1955

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Public Buildings Law, sealed proposals will be received until 10:30 A.M., Daylight Saving Time, on September 22, 1955 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract B.P. 55-58 for Beach Protection (Five Stone Groins) at Far Rockaway, The Rockaways, City of New York, Queens County, N. Y.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Mr. M. E. Goul, District Engineer, 325 West Main Street, Babylon, Long Island, New York.
(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City, N. Y.

The deposit for Plans and Proposal Forms is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Engineer's Estimate of Cost for this contract is $860,000.00.

Each proposal must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of five percentum, (5%) of the bid. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF PUBLIC WORKS

U. S. Government

Department of Commerce, Bureau of Public Roads, August 31, 1955. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., SEPTEMBER 28, 1955, for Project 1A3, Colonial Parkway, Bridge over US Route 17, York County, Virginia. Construction of Steel Superstructure with Concrete Floor on Brick-faced Concrete Abutments and Pier, and other work. Length: 0.051 mile. The approximate quantities of the more important items are: 1,115 cu. yd. Concrete, 135,000 lb. Reinforcing Steel, 101,000 lb. Structural Steel and 210 cu. yd. Brick Masonry. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above or Bureau of Public Roads, 920 South Jefferson Street, Roanoke, Virginia. H. J. Speiman, Division Engineer.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4517) will be received at Kennewick, Washington, until October 13, 1955, for furnishing labor and materials for earthwork and structures, Badger East and West Laterals and Highlands Feeder Canal and Laterals, Yakima Project, Washington. Location near Kennewick, Washington. Principal items are 200,000 cu. yds. of excavation for laterals, structures and pipe trenches; 32,600 lin. ft. of precast concrete pipe, diameters vary from 8 to 48 inches; 560 cu. yds. of concrete; and other work. Completion time 300 days. For particulars, address Bureau of Reclamation, P. O. Box 516, Kennewick, Washington; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: September 22, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 25 (1927), U.S. ROUTES 1 & 9 (1953) SECTION 1-8
ROUTE 1 (1927), U.S. ROUTES 1 & 9 TRUCK (1953), SECTION 4-G

Route 25 (1927), U.S. Routes 1 & 9 (1953), Section 1-8, General Pulaski Memorial Skyway, Median Divider, Jersey City, Kearny and Newark, Hudson and Essex Counties, and Route 1 (1927), Route U.S. 1 & 9 Truck (1953), Section 4-G, from Wallis Avenue to Freeman Avenue, Widening, Jersey City, Hudson County. The principal items of work are:

Estimated:
13,636 lin. ft. Median Divider
512 cu. yds. Roadway Excavation, Earth
271 sq. yds. Pavement Excavation
300 cu. yds. Subbase
688 sq. yds. Pavement Type MABC-1, 1½" Thick
900 sq. yds. Concrete Pavement Surface Reinforced, 9" Thick
2,661 lin. ft. White Concrete Vertical Curb, Various Sizes

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Thursday, September 22, 1955, at NINE o'clock (9:00 A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J. and may be inspected by prospective bidders during office hours. Plans and supplementary specifications will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by the following documents: (1) a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00; (2) a proposal bond for the sum of not less than fifty percent (50%) of the total price bid for the project; (3) a financial statement (Part 1 of the Prequalification Questionnaire); (4) a plan and equipment statement (Part 3 of the Prequalification Questionnaire); and (5) a Non-collusion Affidavit executed in duplicate; and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

Bids: October 6, 1955

Louisville Water Company

ADVERTISEMENT FOR BIDS

Sealed bids will be received by the Louisville Water Co. at its office in Louisville, Kentucky, up to 11:00 A.M. CST. October 6, 1955 on the following contracts:

CONTRACT A—General Construction
Part 1—Filter & Chemical Bldg. Addition
Part 2—Tunnel Construction
CONTRACT B—Filter Equipment
CONTRACT C—Chemical Conveying Equipment

The plans and specifications are on file and may be examined at the office of the Louisville Water Co., and at the office of Alvord, Burdick & Howson, Engineers, 20 N. Wacker Drive, Chicago 6, Illinois.

Plans and specifications may be obtained by depositing Fifteen Dollars ($15.00) with the Louisville Water Co. or Alvord, Burdick & Howson. The deposit will be refunded to bidders who submit a bona fide bid and return the plans and specifications in good condition at the time bids are taken. Additional copies of the plans and specifications for use of subcontractors may be bought for the same prices, with no refund.

Each bidder shall deposit with his proposal a certified check in favor of the Louisville Water Co. in the amount of five per cent (5%) of his bid, which shall be forfeited in case the contractor fails to enter into contract with good and sufficient bond within ten (10) days after the contract has been awarded to him.

No proposal may be withdrawn after the time for opening bids is past.

The right is reserved to reject any or all bids or waive any informality in any bid, and to accept any considered advantage to the Louisville Water Co.

LOUISVILLE WATER CO.
By: B. E. Payne
Chief Engineer & Supt.

Bids: September 30, 1955

Town of Bethlehem, N. Y.

ADVERTISEMENT
NOTICE TO CONTRACTORS

Notice is hereby given that sealed bids or proposals enclosed in sealed plain wrapper bearing the appropriate identification, "Bid for Additional Softener Plant, Booster Pump and Water Storage Tank," will be received by the Board of Water Commissioners at its office in the Town Hall, Town of Bethlehem, Delmar, New York, at 7:30 P.M. Eastern Daylight Saving Time on the 30th day of September, 1955; and then will be publicly opened and read aloud at a meeting of said Board, to be held at such time and place.

The work includes a 500 G.P.M. Softener Plant with Brine Storage Tank; a 75 G.P.M. Booster Pump, 20,000 Gallon Steel Standpipe with foundations and control chamber; miscellaneous piping and valves. Copies of the plans and specifications may be examined at the office of the Town Clerk of the Town of Bethlehem, New York, 393 Delaware Avenue, Delmar, New York, or at the offices of the Engineers, Benjamin L. Smith & Associates, 11 North Pearl Street, Albany, New York; copies thereof may be obtained from the Board and/or Engineers upon payment of Fifteen Dollars ($15.00) for each set of plans and specifications.

Proposals must be submitted on the blank forms provided and in a manner designated therein. Each proposal must be accompanied by a Bid Bond or certified check in an amount equal to Five Per Cent (5%) of the total bid. The Bid Bonds or Certified Checks of all but the three lowest bidders will be returned within three days after the opening of bids, while the remaining bonds or checks will be returned as soon as a contract has been executed. The Bid Bond or Certified Check of the successful bidder will be retained to pay any loss or damage to Water District No. 1 and/or the Town of Bethlehem in the event said successful bidder shall refuse or neglect to enter into a contract in accordance with his proposal. Acceptance of the bid will be contingent upon the fulfillment of this requirement by each bidder. The Board of Water Commissioners reserves the right to consider bids for a period of Forty-Five Days after their opening, and the right is reserved to reject all bids.

BOARD OF WATER COMMISSIONERS,
WATER DISTRICT NO. 1,
TOWN OF BETHLEHEM, NEW YORK.
BY: Harold C. Barkhuff, Chairman

U. S. Government

Sealed bids will be received in the office of Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone, until 10:00 A.M., EST, November 15, 1955 and at that time publicly opened, for the following: Furnishing all plant, labor, materials, equipment, and services and performing all work to convert all domestic commercial, and industrial equipment on the Atlantic side of the Canal Zone from 25 to 60 cycle operation. Plans and specifications are available for examination in the office of Procurement Officer, Panama Canal Company, 21 West Street, New York 6, N. Y. A pre-bidding conference will be held in the Administration Building, Balboa Heights, Canal Zone, at 8:00 A.M., October 5, 1955, to which all prospective bidders are invited to attend. Plans, specifications, and bid forms may be obtained from Procurement Officer, Panama Canal Company, 21 West Street, New York 6, N. Y., upon payment of $50 deposit which should be in form of cash, money order, or certified check made payable to Treasurer, Panama Canal Company.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4518) will be received at Huron, South Dakota, until October 25, 1955, for furnishing labor and materials for Yankton Substation, modifications to Sioux Falls and Watertown Substations and construction of 115-kv transmission line approach to Yankton Substation, South Dakota, Missouri River Basin Project. Location near Yankton, Sioux Falls and Watertown, South Dakota. Principal items are 1,080 cu. yds. excavation; 110 cu. yds. concrete; 57,000 pounds furnishing and erecting steel structures; lump sum constructing service building; lump sum furnishing all materials and constructing structures for 0.9 miles of 115 kilovolt transmission line; and other work. Completion time 290 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana; P. O. Box 825, Huron, South Dakota; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

POSITION VACANT

BRIDGE ENGINEERS

Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:
Detailers—2 years structural steel or reinforced concrete detailing.
Designers—4 years responsible work on structural steel and concrete including work on long span bridges.
Mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
55 Liberty Street New York 5, N. Y.

OFFICIAL PROPOSALS

Bids: October 5, 1955

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m. Eastern Daylight Saving Time, the 5th day of October 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract:

For the provision and installation of complete Heating and Ventilation Systems for the North and South Portal Buildings of the T. J. Evans Tunnel, Contract 518-E, part of the Northeastern Extension of the Pennsylvania Turnpike in Lehigh and Carbon Counties, Commonwealth of Pennsylvania, the project being situated as follows:

The South Portal Building and adjacent Cut and Cover Tunnel Section is approximately 2,703 lineal feet northwest of the center line of Legislative Route 39119 between Turnpike Stations 1342+50 and 1343+76.31 in Washington Township, Lehigh County, and the North Portal Building and adjacent Cut and Cover Tunnel Section is approximately 4,582 lineal feet southeast of the center line intersection of the Turnpike and the Lehigh and New England Railroad between Turnpike Stations 1385+14.95 and 1386+29.44 in East Penn Township, Carbon County.

Bids are to be submitted on a lump sum basis.

Copies of plans, specifications and other contract documents are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on September 8, 1955. Plans, specifications and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy.

Plans and contract documents for this section, exclusive of specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty-five (25) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
26 August 1955

Bids: October 5, 1955

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m. Eastern Daylight Saving Time, the 5th day of October 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract:

For the provision and installation of complete Electrical Systems for the North and South Portal Buildings and Cut and Cover Tunnel Sections, together with Electrical Work between the Rock Portals in the T. J. Evans Tunnel, Contract 518-C, part of the Northeastern Extension of the Pennsylvania Turnpike in Lehigh and Carbon Counties, Commonwealth of Pennsylvania, the project being situated as follows:

The South Portal Building and adjacent Cut and Cover Tunnel Section is approximately 2,703 lineal feet northwest of the center line of Legislative Route 39119 between Turnpike Stations 1342+50 and 1343+76.31 in Washington Township, Lehigh County, and the North Portal Building and adjacent Cut and Cover Tunnel Section is approximately 4,582 lineal feet southeast of the center line intersection of the Turnpike and the Lehigh and New England Railroad between Turnpike Stations 1385+14.95 and 1386+29.44 in East Penn Township, Carbon County.

Bids are to be submitted on a lump sum basis.

Copies of plans and specifications and other contract documents are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on September 8, 1955. Plans, specifications and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy.

Plans and contract documents for this section, exclusive of specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty-five (25) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

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PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
26 August 1955

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4514) will be received at Denver, Colorado, until October 11, 1955, for furnishing motor-driven, vertical-shaft pumping units having the following capacities: four units, 35 cfs each, under total head of 3 feet; two units, 20 cfs each, under total head of 3 feet; two units, 18 cfs each, under total head of 8 feet; and two units, 8 cfs each, under total head of 14 feet. Also two 30-inch, and two 24-inch motor-operated butterfly valves for Fish Collecting Facilities, Delta Mendota Intake Canal, Central Valley Project, California. Delivery is desired within 150 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4516) will be received at Denver, Colorado, until October 11, 1955, for furnishing motor-driven, vertical-shaft, turbine-type pumping units having the following capacities: two pumping units each with a capacity of 22 cubic feet per second under a total head of 136 feet; and two pumping units each with a capacity of 20 cubic feet per second under a total head of 67 feet, for Lucerne Pumping Plant No. 1, Missouri River Basin Project, Wyoming. Delivery is desired within 150 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

Positions Vacant
Positions Wanted
Part Time Work
Civil Service Opportunities . . .
Selling Opportunities Wanted
Selling Opportunities Offered
Employment Agencies
Employment Services
Labor Bureaus

RATES

DISPLAYED

The advertising rate is $24.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on a column — 3 columns — 30 inches to a page.

Subject to Agency Commission.

UNDISPLAYED

$1.80 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Box Numbers—counts as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions. Not subject to Agency Commission.

Send NEW ADS to ENGINEERING NEWS RECORD, 330 W. 42nd St., N. Y. 36, N. Y. for September 29th issue closing September 19th.

—DESIGN ENGINEERS—

Permanent Positions in Atlanta Georgia for Qualified

Chemical Plant Design Engineers

Bridge & Highway Design Engineers

Applicants should have at least 10 years responsible design experience in either of the above fields and capable of checking and directing the work of others. Salaries commensurate with education and specific experience.

Reply in full, giving particulars concerning salary, education, experience, personal history and availability.

PATCHEN AND ZIMMERMAN
Engineers
120 SPRING STREET
ATLANTA, GEORGIA

CHIEF HIGHWAY ENGINEER

Well established Midwestern consulting firm requires services of an experienced highway engineer to head up extensive highway daign projects. Man between 30 and 45 years of age who has had experience as Chief Road Design Engineer with a State Highway Department, or man with comparable position with private firm, is preferred. Opportunity for special partner status with minimum starting income of $10,000.00. Applicants must be thoroughly grounded in highway design techniques, be able to perform contact work with clients, and direct large force of designers and draftsmen on diverse highway projects. Give age, education, experience, and earliest date available. Replies will be held in strict confidence.

P-7654, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

WANTED
Experienced Superintendent

In heavy earth and rock evacuation using modern type equipment. Send resume of experience and references.

P-7663, Engineering News-Record
330 West 42nd Street, New York 36, N. Y.

SOUTH DAKOTA DEPARTMENT OF HIGHWAYS

announces openings

Openings on the South Dakota Department of Highways staff present permanent opportunities for recent Civil Engineering graduates and experienced engineers in the following classifications and salary brackets:

Structural Designer	$6340-7020
Structural Draftsman	6340-7020
Urban Design Engineer	6340-7020
Final Plans Draftsman	6340-7020
Soils Research Tech.	6340-7020
Soils Engr. Ass't.	5420-6340
Ass't. Engineer-Geologist	4800-5420
Civil Engineers (Highway-Survey-Design-Construction)	4800-8040

These openings offer sick leave with pay, paid vacations, military leave with pay, available hospitalization plan.

Write to: **H. A. Tunge, Personnel Director, Department of Highways, Pierre, South Dakota. Application forms will be forwarded by return mail.**

ENGINEERS — DESIGNERS

Chemical - Mechanical - Electrical - Structural - Piping

San Francisco assignment

Recent design experience on petroleum refineries, chemical plants, or related projects. Compensation commensurate with ability. Liberal moving allowances.

Please write furnishing complete chronological experience record and salary history, also full details regarding education, salary desired, businesss and character references.

BECHTEL CORPORATION

220 Bush Street — **San Francisco 4, Calif.**

ENGINEERS and DRAFTSMEN

Growing company expanding engineering division. Opportunities for rapid advancement into management and development work on TV broadcast antenna towers, industrial buildings, aircraft hangars, mechanical parking garages. Liberal benefits, including retirement. Moving expenses paid.

Write
Freeman Mann
DRESSER-IDECO COMPANY
One of the Dresser Industries
875 Michigan Ave.,
Columbus, Ohio

ENGINEERS

HIGHWAYS AND BRIDGES

Designers
Draftsmen
Office Engineers
Maintenance Engineers
Project Engineers
Location Engineers
Soils & Materials Engineers

FIELD SURVEY PERSONNEL

Party Chiefs
Instrumentman
Chainmen

OTHER PERSONNEL

Hydrologist
Equipment Supervisor
Master Mechanic

Domestic and Overseas Assignments
Knowledge of Foreign language necessary in some classifications.

Write giving full particulars concerning education, experience, personal history and availability to:

Richard L. Shaw
Personnel Director
Michael Baker, Jr., Inc.
Consulting Engineers
Baker Building — **Rochester, Penna.**

Construction Engineer

To Be Employed In Spain

Must be graduate engineer and at least 40 years old. Experience in Materials Control Testing on air field construction including soils, asphalt and concrete testing necessary. Familiarity with good construction practices, air field design, and derivation of specification requirements also necessary. Prefer individual employed formerly by Architect-Engineering firm.

Submit complete resume to:

PERSONNEL MANAGER
A.E.S.B.
250 Hudson Street,
New York 13, New York

ESTIMATOR

CAREER OPPORTUNITY

at Portland, Oregon

with

Recognized Pacific Coast firm serving the Northwest with steel fabricated products. Fine opportunity for estimator experienced in shop operations of general steel fabrication including tanks and pressure vessels. Engineering degree not required.

SALARY

Commensurate with ability and experience. Liberal health and welfare, insurance, pension, and vacation programs. Relocation allowance if warranted.

Send resume to:

Addison B. Wood, Personnel Manager
American Pipe and Construction Co.
P. O. Box 1898, Portland 11, Oregon

CIVIL ENGINEERS

Instrument Men

CITY OF KENOSHA, WIS.

Permanent positions available in the City Engineering Department at the following grades and annual rates:

Instrument Man	$2820 to $3360
Civil Engineer I	$4200 to $4740
Civil Engineer II	$4680 to $5400
Civil Engineer III	$5280 to $6000
Civil Engineer IV	$5880 to $6600

We also offer two weeks vacation, Blue Cross & Blue Shield Hospitalization, Wisconsin Retirement Fund, and Social Security.

Please write furnishing experience, education, degrees, registration, time in military service—stating branch, to:

Director of Personnel,
City Hall, Kenosha, Wisconsin

Cost Engineer

For atomic power plant construction. Must have engineering background with knowledge of accounting.

P-7661, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED: PAVER SALES SPECIALIST

LEADING manufacturer of paving equipment needs man to act as paver sales specialist. Should have considerable experience in road paving and be familiar with all types of concrete paving equipment. Write

P-7668, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

EMPLOYMENT OPPORTUNITIES

SALARIED POSITIONS $5,000 — $35,000

We offer the original personal employment service (established 45 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc.
659 Brisbane Bldg. Buffalo 3, N. Y.

STRUCTURAL STEEL DETAILERS AND CHECKERS

Top rates for exp. men, long program, overtime, vacation, holidays.

SAMUEL LICHTENBERG
STRUCTURAL ENGINEER
113 West 42nd St. New York 36, N. Y.

HYDROLOGISTS

Capable and experienced ground-water hydrologist to make hydrologic reconnaissance surveys, conduct pumping tests, etc., on project of approx. one years' duration in Jordan. Must go single status. Please send resume and salary required to:

HARZA ENGINEERING COMPANY
400 W. Madison St., Chicago 6, Ill.

ENGINEER WANTED

Project engineer thoroughly experienced in major Hydro Electric Power development for Langlay employment in state of New York. Applicant must have satisfactory record of past performance. Apply to B. PERINI & SONS, Inc., Walsh, Morrison-Knudsen, Kiewit, Utah; P. O. Box 1000, Massena, N. Y.; phone Rockwell 9-9921.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Construction Foreman for firm engaged in extensive sewer, water main and treatment plant facilities. Permanent position in N. Y. State area. Only qualified applicants with broad experience. P-6595, Engineering News-Record.

Wanted: Instructor in engineering drawing and descriptive geometry. Salary $3600 for 9 month period. Dept. of Engr. Drawing, University of North Dakota, Grand Forks, North Dakota.

Engineers experienced in water and sewage works projects or related fields. Opportunity for permanent connection with long established consulting firm. Please state full qualifications, experience, references and salary requirements. Location Ohio. P-7504, Engineering News-Record.

Paper Mill Construction Superintendent — Either foreign or domestic projects. Must have 20 years experience in all phases of paper mill construction including foundations, buildings, equipment setting, boilers, conveyors, piping and instrumentation. Must have proven administrative ability to coordinate all crafts. Reply should include full resume, age, assignment preference and salary required. P-7509, Engineering News-Record.

General Construction Superintendent — For foreign and domestic assignment. Should have 15 years experience heavy industrial building construction. Engineering background preferred. Must have strong references demonstrating extensive administrative ability and capacity to handle all phases of a project. Reply giving age, complete resume and salary required. P-7510, Engineering News-Record.

Engineer with estimating and management experience for general contractors office doing industrial and public works building. Excellent opportunity. State age, experience and references. Our employees know of this ad. Midwest location. P-7492, Engineering News-Record.

Engineer qualified to teach structural design. Full or part-time. Rank and salary open. C. E. Dept., Manhattan College, N. Y. 71, N. Y.

AVAILABLE—TOP EXECUTIVE—ENGINEER
B.S.C.E., Age 43. Registered D.C. and many states. 17 yrs construction management. Knows Chem plants. Lately in charge $90,000,000.00 job and const. co. vice-president. Particularly well equipped high level negotiations, sales, prom. Know gov't. contract negotiation. Widely traveled some years in Far East. Excel. ref. and connections. Personality can open any door. Versatile enough handle any exec. position allied to construction-engineering field.
P-7662, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS VACANT

Needed immediately experienced structural engineer permanent position with progressive established engineering firm. Salary open. Write complete details education & experience to H. J. Ross Associates, 3047 Biscayne Blvd., Miami, Fla.

Engineer—Estimator, foreman, for sewer, water and roadwork. Must be top man, willing to work hard. The Forest Company, 121 North Main St., Wharton, N. J. Phone Dover 6-2320.

Civil Engineer—For asst. city engineer position. Must be P.E. with experience in construction and design. Civil Service tenure. Salary $645 to $724 per mo. Max. age 50. For details write to Civil Service Office, City Hall, Dearborn, Mich.

Superintendents and Foremen for firm utilizing all types of construction equipment. Must have extensive mechanical experience, proven ability to supervise operators and mechanics. Permanent locations, good starting salary and opportunity for advancement. Send complete details of background, experience and salary requirements to: Box P-7624, Engineering News-Record.

Bridge designers and draftsmen wanted. State education, experience, and salary desired in reply. T. B. Gunter, Jr., Bridge Engineer, State Highway and Public Works Commission, Raleigh, North Carolina.

Estimator—Engineering graduate with several years experience in estimating costs of oil refineries and chemical plants for contractor in Chicago area. Submit complete resume and photograph indicating education, experience and salary requirement. Box P-7614, Engineering News-Record, 330 W. 42nd Street, New York 36, N. Y.

Highway and Bridge designers and draftsmen. Positions open for men experienced in the design of highways and bridges. Long established Pennsylvania firm. Steady program of work. Usual employee benefits. Please submit information concerning education, complete experience, references, salary requirements, and availability. P-7615, Engineering News-Record.

Engineers—Experienced in design and preparation of plans for water works and sewerage systems and structural design. Advise education, experience, salary requirements and when available. Location Eastern New York. Reply P-7657, Engineering News-Record.

Architect—Qualified through training and experience to design churches, schools and other buildings. Give full information as to education, experience, salary requirements and when available. Location Eastern New York. P-7658, Engineering News-Record.

Engineer—Experienced at design and detailing of reinforced concrete and structural steel for highway structures. Location, Upper New York State. Please send complete experience record and salary required. P-7660, Engineering News-Record.

Graduate Civil Engineers not over 27 and single, or if married, willing to move. Must have military training completed and interested in learning building construction business. We offer opportunity for rapid advancement to ambitious, hard-working young men willing to accept responsibility. Starting salary $92.50 if unexperienced with higher rates for those with experience. Some engineers increase their salary 20% within one year. Send complete history data. Martin K. Eby Construction Co., Inc., 610 N. Main, Wichita, Kansas.

Structural Engineer — Memphis Tennessee Registered, experienced in design and inspection of steel and reinforced concrete. Choice opportunity with long-established engineering firm. Not a traveling job. Excellent pay and benefits commensurate with ability and responsibility. An immediate opportunity for the right man. Reply with resume of education. P-7669, Engineering News-Record.

POSITIONS VACANT

Engineer—Superintendent for blacktop paving on roads, airports, etc. Must be graduate engineer between 30-40 years old who has been actively engaged in actually doing this type of work for at least the last five years in this capacity. This is a permanent position with a substantial company in New York State. This opening has a real future for the right man. Salary open. P-7559, Engineering News-Record.

Estimator for established firm engaged in the engineering and construction of complete industrial plants. Should have at least five years experience in pricing labor and material on large scale industrial projects. Location, Pittsburgh. Please furnish resume of experience and training. P-7647, Engineering News-Record.

Municipal engineer for the Village of Ossining. General knowledge of water works, sewers, streets. Preparation of plans and specifications, etc. Mail resume with name, address and salary requirements. Ubaldo Marino, 6 Croton Ave., Ossining, New York.

EMPLOYMENT SERVICE

Salaried personnel, $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, P. O. Box 674, Manchester, Vermont.

POSITIONS WANTED

Construction Supt. or Project Manager, aged 46, graduate civil engineer, 18 years experience in diversified construction of Super Highway, bridges, air force bases and PWA housing projects, in Maryland, Penn, Ohio and Indiana. Just completed three and one-half million dual lane highway for state of Maryland, good organizer, have efficient following with exceptional clean record of accomplishments, will go anywhere, available at once. PW-7535, Engineering News-Record.

Civil Engineering Position Wanted. Twenty years experience, field and office. Responsible charge on design, estimates, field superv. and layout for highway, municipal, water and sewerage works. PW-7312, Engineering News-Record.

Controller Office Mgr.—12 yrs. experience engineering & construction accounting. Top administrator all financial & accounting functions. Resume on request. Go anywhere. PW-7496, Engineering News-Record.

Executive—Office Manager—18 years with heavy construction contractor, main office. Thoroughly experienced in all phases of office procedure—finance, insurance, payrolls, etc. A1 business and character references. Interested in connecting with progressive organization. New York Metropolitan Area. PW-7640, Engineering News-Record.

Civil Engineer, Const. Estimator 10 years experience in all phases construction, field and office. Interested in Foreign Contract. PW-7653, Engineering News-Record.

Civil Engineer desires position related to engineered construction with contractor, subcontractor, or material supply, Ohio preferred. PW-7648, Engineering News-Record.

Master Driller wants foreign assignment thoroughly qualified—entire profession excellent health, resourceful-dependable speaks English, Spanish, German, Turkish. William Nann, Box 26, Mahwah, New Jersey.

Don't forget the
Box Number

WHEN answering the classified advertisements in this magazine, don't forget to put the box number on your envelope. It's our only means of identifying the advertisement you are answering.

DESIGN ENGINEERS

PERMANENT OPPORTUNITIES
AT OUR

Cleveland, Ohio, offices with an engineering firm having over 50 years of successful operation doing business all over the world.

The McKEE organization continues to grow and expand and continues to offer many permanent present and future opportunities for qualified, experienced ENGINEERS and DESIGNERS in the following fields:

—STRUCTURAL STEEL
—CONCRETE
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—PIPING
—PROCESS HEATERS
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—MECHANICAL
and
—ELECTRICAL DRAFTSMEN
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Applicants should have at least 5 years of good design experience in any of the above fields, applicable to heavy construction as described below—

McKEE designs and constructs Blast Furnaces, Open Hearth Furnaces, Sintering Plants and Auxiliary Facilities; Oil Refineries, Chemical and Petro-Chemical Plants and Atomic Energy, Aluminum, Industrial and Other Non-Ferrous Metal Plants; All of these afford a wide diversification of opportunities to energetic and qualified engineers.

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A rapidly expanding organization devoted exclusively to highway engineering has openings at all levels for men experienced in the design of highways, freeways, expressways and associated work.
Work is in air-conditioned St. Louis office on long-term projects, with ample opportunity for professional development and advancement.
Assistance with moving expenses, excellent employee benefit and retirement plan, Blue Cross, paid vacations and holidays and sick leave.
Please send complete experience record, references, date available and salary desired in first letter.

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Engineers—Foremen—Office Men
Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.
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STRUCTURAL ENGINEERING
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OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty third year.
WILSON *Engineering Corp.*
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Operating Business For Sale
(in whole or in part)

R. M. Concrete Plant. 2 Units.
Modern Asphalt Plant and
All Construction Equipment.

In active middle New Jersey area. Adjacent to New Jersey Turnpike and Garden State Parkway. Has always been successful and profitable operation.

BO-7674, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
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Civil Engineering and Surveying business, firmly established. Located Florida West Coast metropolitan area. Grossing approximately $100,000 annually, can be tripled. Excellent location; commodious offices. Investment will pay out of earnings in three years. Qualified persons please contact BO-7463, Engineering News-Record.

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NEW or GUARANTEED USED:

Four 250 HP Electric Motors, 1800 RPM, 3-phase, 60-cycle, 440 volts, part winding increment start.

Four 200 HP Electric Motors, 1800 RPM, 3-phase, 60-cycle, 440 volts, part winding increment start.

Four 250 HP, 3-phase, 60-cycle, 440 volt part winding increment starters with disconnect and start-stop buttons in cover.

Four 200 HP, 3-phase, 60-cycle, 440 volt part winding increment starters with disconnect and start-stop buttons in cover.

W-7686, Engineering News-Record
1111 Wilshire Blvd., Los Angeles, Calif.

Wanted
CRANE
40—50 T American or Industrial Brownhoist Diesel Electric Locomotive Crane.
W-7649, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

READ THIS ONE!

50% Of Any Reasonable Offer Accepted For One Or All

2—4 Sheave Steel Blocks, 16" Sheaves 2½" Pins With Shackles

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DRAVO
Self contained—Oil fired heating units
(1)-500 BTU
(3)-1 Million BTU
(2)-1½ Million BTU
(3)-2 Million BTU
Reconditioned like New
(underwriter approved)
WORLD STEEL PROD CORP.
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DEPENDABLE USED MACHINES

Special:—Pioneer port. gravel plant with 9x36 crusher, screen, Diesel power and pn. tires.

Bucyrus 10B hoe
Bay City ½ yd. hoe
NW 52 truck crane
Link-Belt LS-75 crane
17½ ton locomotive crane
Unit 1020A Diesel dragline
Lorain ¾ yd dragline; 30" cats
Lessman high lift loader
Agricat with angledozer blade
Koehring 503 Diesel dragline
20 ton lowboy
Eagle coal crusher
2x6 screen
Butler Carscoop
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For rent,—Cranes, truck cranes, buckets, frost balls, floats & other accessories.

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New and Used material—Immediate delivery from stock Angles, Channels, I and WF Beams, especially for Contractors needs

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50 pcs	10" B P S	42#	48/60'
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60 "	12" B P S	53#	60'
63 "	14" B P S	73#	60/75'

Phone or Wire your steel requirements

We are also interested in purchasing your surplus material.

We assure you our prices will be the best obtainable.

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ASstoria 8-4484 8-8023

Sales Office
563 East Tremont Ave., New York City, N. Y.
CYpress 9-5440

FOR SALE

1—10 Ton Whitcomb Loco. 36" Ga.
2— 6 Ton Plymouth Loco. 36" Ga.
75 Flat Cars 24"-36" Ga.—4 Ton Cap.
12 Flat Cars 36" Ga.—15 Ton Cap.

Rail & Industrial Equipment Co., INC.
30 Church St. New York 7, N. Y.

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SURPLUS NEW and USED For Sale or Rent

We do a Nation-Wide business in

STEEL SHEET PILING

IMMEDIATE SHIPMENT
683 pcs. 68-39 ft. Carn. MP-101—West Coast
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DIESEL ELECTRIC LOCOMOTIVES

STANDARD GAUGE
25 - 44 - 45 - 65 - 75 tons
and
3 Alco 900 HP - G.E. Electric Equipment
Write for Details
FRANK M. JUDGE & CO., INC.
7010 Empire State Building
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LOCOMOTIVES

1—Plymouth 8 Ton 36" Ga. #4131.
1—Plymouth 8 Ton Gas, Std. Ga. #4095.
2—Plymouth 25 T.—36" Ga.—Diesels.
1—Brookville 3 Ton—Gas—24" Ga.—#3402.
2—Conway Mod. 75 Muckers, #256 & #305.
1—G. E. 25 T.—36" Ga.—Diesel-Electric
Bridgeford Axle Lathe.
2—50 Ton Twin Hopper Cars.
1—Whiting Type B 35 Ton—Pit Drop Table—New.
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Get the exact lengths and sections you need from Foster—all standard makes, delivered *on time*—and at Foster's standard low rental rates. Also Rental Pile Hammers & Extractors.

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NEW, SURPLUS
STEEL SHEET PILING

USED EUCLIDS

Sale or Rent

3—Model 71FDT 13 cu. yd. Bottom Dump, GM Diesel Power. Excellent Condition.
7—Model FD 15 ton Rear Dump, Cummins Diesel Power. Good Operating Condition.
All subject to prior sale.

L. B. SMITH, INC.
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Steel Sheet Piling In U. S. & Canada
125 TONS ALGOMA B8—20', 35' & 40' CANADA.
800 TONS BETH. SP4—20, 30, 35' US & CANADA.
600 TONS BETH. DP2—AP3—40 & 60 FT. N.Y.
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9 Diesel Locomotives
G. E. 25, 35, 45, 65, 80 & 100 TON.

20E Clyde Elec. Whirley 45 Ton
100' BOOM—30' GAUGE—DRUM HOIST.

New 1953 Mix & Batch Plant
100 Yd. JOHNSON OCTAGON BIN. WEIGHERS. 100 BBL. CEMENT BIN. CONVEYORS. FEEDERS. 3—2 YD. TILT MIXERS. ALL COMPLETE.

Diamond 66A Crushing Plant
10 x 36 CRUSHER — 30 x 18 ROLLS, VIB. SCREENS & CONVEYOR.

DARIEN
60 E. 42nd St., N. Y. 17, N. Y.

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PILING . . . fast

use this section, as many contractors do, as a piling buying directory. It can save you time when you want to know, quickly, where to buy good new or used piling.

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TRACK ACCESSORIES
NEW and RELAYING

RAILS NEW — RELAYING — TRACK ACCESSORIES
MIDWEST STEEL CORP.
502 DAYDEN AVENUE
CHARLESTON, W. VA
IMMEDIATE DELIVERY

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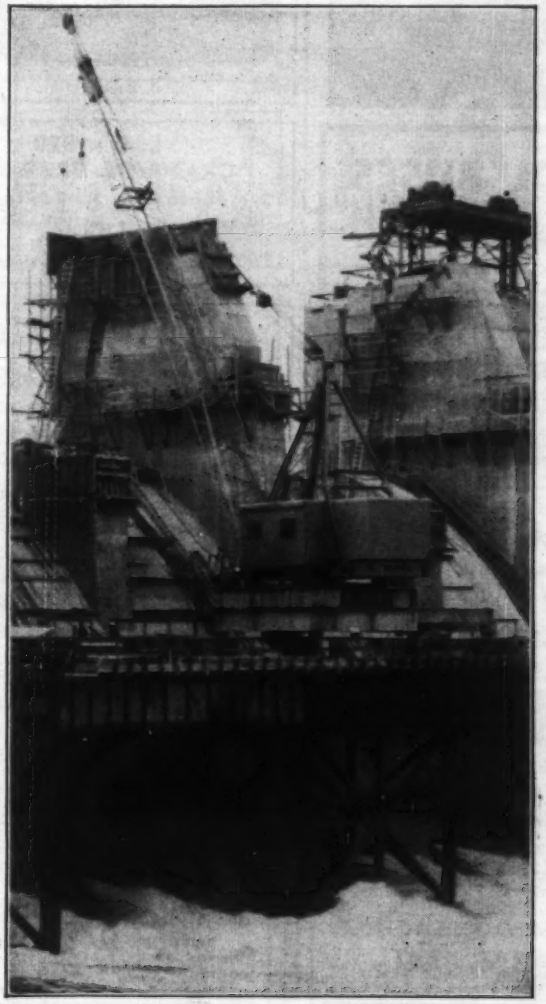
USED ONLY IN CONSTRUCTION OF

THE SHEPAUG DAM ON THE HOUSATONIC RIVER



Clyde Model 20-E-100 plus 10 Electric Whirley Crane, without gantry but including a sub base to span track width of 32 feet center to center of rails, with travel trucks and designed to support crane when mounted either at one end or in the center of base at maximum capacity of crane. 100 ft. boom with 10 ft. whip extension. Capacity 90,000 lbs. at 30 ft. radius. Motors 440 V, 60 Cy., 3 Ph.

Detailed specifications furnished on request.

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Agents of The Connecticut Light and Power Co.

POST OFFICE BOX 718
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Telephone—Woodbury 1810

For Sale
COMPLETE SAND PLANT
Capacity 125-150 Tons Per Hour

With Following Equipment

1 Eagle Double Screw Classifier-Dehydrator, 84" x 25' Tub, 36" Dia. Flights, 30 HP 220/440 V Motor
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1 Woods 72" Sand Classifier
1 Auto-Vortex Bowl Classifier, 20'
1 Ruth Rod Mill 4' x 11' with D13000 Generator
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1 Conveyor 30" x 100' w/20 HP Motor
1 Conveyor 30" x 140' w/10 HP Motor
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1 Johnson 35 c.y. Steel Hopper w/Clam Gates
1 Steel Hopper 28 c.y. and Steel Decking
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1 Nagle Horizontal Pump 3", Type T-#95J
1 Lighting Pump, 4" Model X
1 Marlow Pump, #10EV w/½ HP Motor
2 Syntron Vibrators
3 Syntron Vibrators—V200
1 Syntron Feeder 37N-F22, w/Electric Motor
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1500 L.F. App. 8"—12 Gauge Spiral Steel Pipe
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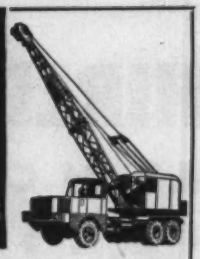
Complete with Electric Controls.

Would Consider Sale of Individual Items.
This plant produced Corps of Engineers Specification Sand, Garrison Dam. Can be inspected at Riverdale, North Dakota.
Price Where-is As-is Subject Prior Sale
F.O.B. Cars, Riverside, North Dakota
$48,000.00
For Further Information Write:
GARRISON SPILLWAY CONSTRUCTORS
Riverdale, North Dakota
Tel. Riverdale 633

CRANE RENTALS
19
LORAIN
MOTO CRANES



- 10-45 ton capacities
- 15'-150' booms . . . all attachments and buckets
- complete with experienced operators
- go anywhere . . . coast to coast
- rent "Mighty Mo" . . . the world's largest crane on tires
- rental rates on request

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FOR SALE
1—20" Plain Suction Dredge
Steel Hull Diesel
1—16" Dredge Diesel
1—10" Diesel Dredge
1—20" New Dredge Pump
1—20" 90% New Dredge Pump
1—3½ Yd. Hard Digging Clam Shell Bucket Round Nose
MACHINERY FOR 8 CU. YD. DIPPER DREDGE
1—Fairbanks-Morse Model 41 C, 80 D.W. Direct Connected Diesel Generator Set
1—12" Direct Pump
Direct Connected to 300 H.P. Electric Motor
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ROTARY RAILROAD CAR DUMPER
Standard gage, handle 90 ton capacity cars or 230,000 lbs. gross weight including car, cars 53' max. length, complete with 35 hp. motor and drives, etc. Handle 15 cars per hour. Excellent condition. $20,000 f.o.b. Kansas City.
WENZEL MACHY. CO.
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NEW — USED
All makes and sizes
Delivery by School Opening
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CRANE OR DRAGLINE
S/N 17646 Cat. 13000 Price $18,500
Wanted—Hyster Towing Winches—All sizes.
A. C. R. CO.
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FOR SALE OR RENT—EASY TERMS
Rebuilt — A 1 Condition
48B Bucyrus Erie Shovel 2 cy Diesel
Caterpillar Auto Patrol No. 12
Caterpillar D8 Bulldozer
Caterpillar Scraper Model 80
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All Equipment Listed Below In First Class Condition

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HD 20 Allis Chalmers Tractor		8,500.00
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1954 Ferguson Tractor and Pippen Backhoe		3,800.00
Bucyrus Erie Scraper		2,500.00
1949 Ford F600 Dump Truck		1,100.00
1950 Chevrolet 6100 Dump Truck		1,100.00
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Ward La France Tractor	(1951)	$3,500.00
902 G.M.C. Tractor	(1954)	5,000.00
Gindy Trailer	(1955)	5,300.00
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N. H. CUMMINS	(200)	$3,400.00
HRB CUMMINS	(165)	2,100.00
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TERMS: 40% CASH ON DELIVERY
12 MONTHS AT 6% INTEREST

FS-7623, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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2—Shepard Niles 4-ton Monorail cranes, cab controlled, 15 HP travel and hoist motors, 80 FPM, 25' lift; equipped with ¾ cu. yd. clam shell buckets.

1—Link Belt Skip Hoist, 4800± cap., 15' lift, 15 HP motor and speed reducer.

Lot of Bucket Elevators, Screw Conveyors, Pan or Apron Conveyors, Trough Belt Conveyor, Drag Chain Conveyor, Blowers, Pumps, etc.

PERRY EQUIPMENT CORP.
1410 N. 6th St. ST 4-7210
Phila. 22, Pa.

VULCAN
PILE HAMMERS AND EXTRACTORS
REBUILT AND REPAIRED
AT FACTORY STANDARDS
327 N. BELL AVE., CHICAGO 12, ILL.

FOR SALE
BUCYRUS-ERIE DRAGLINE
Model 9W with 200' boom, 8 cu. yd. bucket.
WILLIAM LUBRECHT, III
Construction Equipment
311 W. Diamond Ave. - Hazleton, Pa.
Phone: Gladstone 5-4041 or 5-0253

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5—Jaeger Self-Rising Towers, 37' high with 17 H.P. Gase Hoist, Platform & Safety
PRICE $450.00 EACH
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CRANES FOR RENT
CRAWLERS Capacities to 60 tons Booms to 180 ft.
TRUCK CRANES Capacities to 35 tons Booms to 130 ft.
P and H. Lima and Manitowoc.
Top-Condition erection cranes
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EUCLIDS
Used 13 yd. bottom dumps
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Located - Texas - Pa. - N. Y. State
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One Of The Largest Stocks In The East
Seamless and Welded ⅛" to 26" O.D. All wall thickness Manufactured. Specialty large sizes. Cutting — Threading — Flanging — Fittings — Valves.
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Drop Hammers - Driving Caps
Steel Leads - Pile Driver Hose
Hoists and Boilers

CONTRACTORS MACHINERY CO.
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LOW COST INSTALLATION AND OPERATION

CABLEWAYS
IMMEDIATE SHIPMENT
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CAPACITY 3 TO 20 TONS
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FOR SPEED ECONOMY EFFICIENCY FLOOD SAFETY LABOR REDUCTION

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USED EQUIPMENT

Sale or Rent

Quickway Model E 4/10 Yd. Shovel mounted on 4 x 4 Coleman 1949—Fair Condition.

Schield Bantam Shovel-Hoe mounted on GMC 6 x 6 1948—Fair Condition.

Galion Model 118 Gader I-H Diesel Power. Used 3 months—Excellent Condition.

Link Belt LS50 Crawler ½ Yd. Shovel-Hoe, Cat. Power 1947—Good Condition.

Lorain TL25 Waukesha Gas 1950—Excellent Condition.

All subject to prior sale

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Phone 75-2196

FOR SALE

MANITOWOC 3500 High-lift Shovel, 2 cu. yd. capacity, Caterpillar D-17000 diesel engine. Dragline Boom available.

P & H Model 655, 2 cu. yd. Dragline, Serial 15100 series, 75 ft. boom, wide and long crawlers, Caterpillar D-13000 diesel engine, 1952 model. Excellent condition. A Bargin.

Priester
MACHINERY COMPANY, INC.
249 South Third St. Memphis, Tenn.

FOR SALE

2—3 c.y. Hercules Aircreter, Ready Mix Concrete bodies, complete with hoists and controls. Like New—$900.00 each.

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4550 Patterson Avenue
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Overhauled Equipment For Sale

CRAWLER TRACTORS — SALE PRICE

1—International Harvester Model TD24. Put in our rental service 4/16/51. Clock reading—3566 hours. Ser. No. TDE 2565. $11,000

1—International Harvester Model TD24. Put in our rental service 4/17/51. Clock reading—3200 hours. Ser. No. TDE 2568. $11,000

1—International Harvester Model TD24. Put in our rental service used on 4/21/52. Clock reading—1000 hours. Ser. No. TDE 1953 ..... $9,000

1—Caterpillar Model D8. Put in our rental service 4/29/52. Clock reading 4871 hrs. Ser. No. 2U-10910 ..... $13,500

1—Allis-Chalmers Model HD19. Put in our rental service used on 10/12/53. Clock reading—3646 hours. Ser. No. HD19H-1687 ..... $10,000

WHEEL TRACTOR

1—Model D1 Case Tractor, complete with self-starter. Ser. No. 5620209, with Model 4B Front End Loader, ballast box and ¾ yard bucket, Ser. No. B1721. Put in our rental service on 5/1/53 ..... $3,000

TRUCK CRANES

2—Link Belt Model HC90, 25-ton capacity, with 90 ft. alloy main boom and 30 ft. alloy jib. Ser. Nos. 7AT1155 and 7AT-1189. Both of these units were put in our rental service new 1949. each $22,000

UNITED HOISTING CO., INC.
9 WEST SHEFFIELD AVENUE
ENGLEWOOD - NEW JERSEY

COMPRESSOR DIRECTORY

World's Best Rebuilts

All Makes
Many Sizes

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Since 1902
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1 CFM to 5700 CFM
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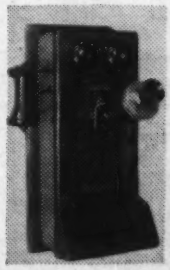

Slightly used Magneto Wall phones that are tested and in excellent condition. Shipping Weight 25 lbs.

Price—
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For Lower N. Y. STATE & CONN.

Offers BONDED USED EQUIPMENT

CATERPILLAR D8 DIESEL TRACTOR, late 2U series, with D337 engine and torque converter 26" tracks, crankcase guard, canopy top, electric starter w/cat. 8S cable dozer and push-cup. Ideal for push loading scrapers. **"BONDED BUY" $24,000.00**

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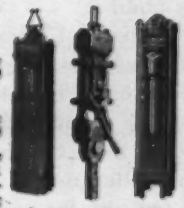

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EDITORIALS

Diverting Toll Revenues

THE RECENT DOUBLING OF TOLLS on the Merritt Parkway in Connecticut is an outstanding example of a trend in thinking about toll financing that has practical advantages, but which could get out of hand to the detriment of sound highway financing in the future. One has only to consider the proposal of Governor Meyner of New Jersey that income from the New Jersey Turnpike in excess of operating costs and bond requirements be used to build schools to realize where that trend could lead.

Income from the former 10-cent tolls on the Merritt Parkway was more than adequate to repay the bonds issued to build that highway. But Connecticut, like every other state, needs money for more highways, especially for the projected 127-mile Greenwich-Killingly toll expressway running across the state parallel to U. S. Route 1. So the legislature increased the gasoline tax from 4 to 6 cents, doubled the toll on the Merritt Parkway, and authorized increases on the Wilbur Cross Parkway and some toll bridges in an effort to keep the state as near as possible to a pay-as-you-go basis.

In a similar manner, the Delaware legislature has authorized the sale of bonds backed by toll revenue from the Delaware Memorial Bridge to finance the reconstruction of access roads to the bridge. In this case, also, the present income from the bridge is more than adequate to amortize the bonds that were issued to build it.

In both of these instances, the financing expedients adopted may have seemed necessary to meet emergency situations. But they should raise a caution signal against all proposals to divert toll income to purposes other than the amortization of the bonds issued to build the project on which the tolls are collected. It is too easy for such diversion to lead to indefinite continuation of the tolls or to their use for other than highway purposes.

The Floods May Help

PUBLIC CONCERN over the damage done in the northeastern states by the August floods may be of help to the Black River Regulating District in New York State in getting authority to build its projected Panther Mountain Reservoir in the Adirondack Park. A constitutional amendment is needed before the district can flood 1,500 acres of that two and one-half million acre forest preserve. Such an amendment will be placed before the voters in New York State this fall, and as one purpose of the reservoir is to help control floods, it is possible the voters may conclude that such use of forest lands is justified.

Normally, there would be little opposition to using so small a part of a forest area for such a purpose. But in this case the proposed reservoir also will flood part of the land within the park area owned by a private hunting and fishing club. Members of that club seem to fear that the new lake will reduce their privacy and so have opposed its construction as a "harmful invasion of the forest area." The fact that some of the stored water will be used for power generation has been played up in this campaign as though that had sinister connotations.

The people of the Black River valley need the reservoir to increase their resources of both water and power. They also need the added flood protection the reservoir will give. If they play up that aspect of the project this fall, their pleas may get a receptive hearing.

One Set of Rules for the Game

IN UPHOLDING THE AUTHORITY of the National Joint Board for Settlement of Jurisdictional Disputes, the National Labor Relations Board merely gave expression to an obvious principle, but one that apparently escaped certain leaders of construction labor:

You cannot play the game on a "heads I win, tails you lose" basis. An agreement on procedure covers exactly what it says, so there cannot be two sets of rules for one side, one set for the other.

The dispute in question (ENR Sept. 1, p. 106) was between carpenters and metal lathers over installation of acoustical tile ceilings, a dispute, incidentally, that stems from a basic trouble in the organization of the Building Trades—determination of who shall do work by type of material used, rather than by the tools or skills concerned. In any event, the Joint Board decided that the installation was carpenters' work. The lathers —later joined by the plumbers—didn't like the decision, and took their case to the NLRB on the grounds that the Joint Board did not have proper jurisdiction.

NLRB wisely and properly refused to rule on who should do the work, but instead directed its attention to the question of Joint Board jurisdiction. And, said NLRB, the lathers' international union had signed an agreement binding it and its affiliates to abide by Joint Board decisions. Therefore, so long as that agreement is in effect, no local union can—just because it doesn't like a decision—appeal to somebody else for a more favorable ruling.

NLRB has in effect, repeated the unions' own oft-repeated contention that "a contract is a contract."

It is notable that 17 of the 19 building trades unions stood solidly against the lather and plumber action in this matter, evidencing their faith in the Joint Board's integrity and their determination to stick by their agreements. The board's long record of successful settlement of such disputes without recourse to strikes is ample justification of that faith. The construction industry can and should settle its own family differences within the family. It is a pity that so much time and energy had to be expended to reinforce that point.

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NO. 5

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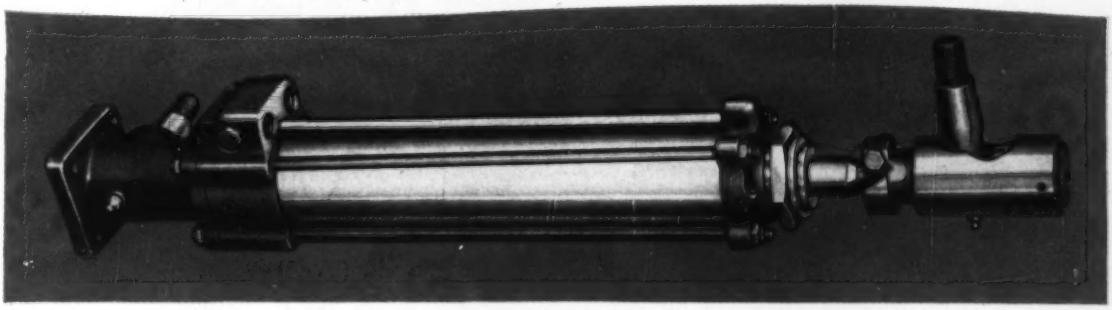

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Like the preceding models, Series S23 has hydraulic lock against road shock. Bumps, chuckholes, blown front tires, obstructions, etc., cannot spin the steering wheel or jerk it out of control. This is a safety factor of great importance.

Series S23 Boosters are provided either with (Model S23R) or without (Model S23N) an integral relief valve. Model S23N is used with Vickers VT16 and VT17 pumps that have integral volume control and relief valve. When the larger volume Series V200 pump is used and a volume control is required in the circuit, the S23N is used with a separate combination valve (see Series FM2 below). Model S23R is used with the Series V200 pumps that have no integral valving, for applications where a volume control is not required.

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MORE VERSATILE INSTALLATION

In Series S23 Boosters, the servo ball stud housing is symmetrical, and can be assembled in any one of four positions. This and the compactness of the Booster makes application easier . . . increases the number of applications which can be made without major engineering changes. Series S23 Boosters can be mounted interchangeably with Models S6-277 and S6-279 Boosters.

REQUIRES LESS SPACE

The new booster has been reduced in size by the redesign of the servo control valve. The tube connecting the servo valve to the rod end has been relocated and is now on the same side as the fitting connection. As a result of these changes, Series S23 requires less space . . . works in closer quarters.

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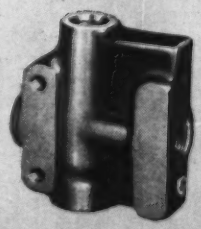

Five sizes of Series FM2 Valves were developed primarily for hydraulic power steering on trucks, buses and materials handling equipment where the pump does not include a volume control valve. The FM2 improves steering booster performance by providing a relatively constant volume of oil regardless of engine speed variations. An integral relief valve is included.

New portable Mixall produces up to 5 tons of hot mix per hour

TIMKEN® bearings keep it rolling

THE new Barber-Greene 804 Mixall will produce up to 5 tons per hour of any type hot mix, up to 10 tons per hour of cold mix and will produce low slump Portland cement mixes. It's compact and portable, especially suited for small maintenance and paving jobs. Timken® tapered roller bearings on the wheels keep it rolling in all kinds of weather, over all kinds of terrain, assuring availability.

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Since the Mixall travels almost constantly from job to job, often over rough terrain, the wheel bearings take a beating. But the tapered design of Timken bearings lets them take both radial and thrust loads. And full line contact between rollers and races of Timken bearings provides load-carrying capacity to spare. Shock loads are easily taken because Timken bearings are case-hardened to give them a hard, wear-resistant surface over a tough, shock-resistant core.

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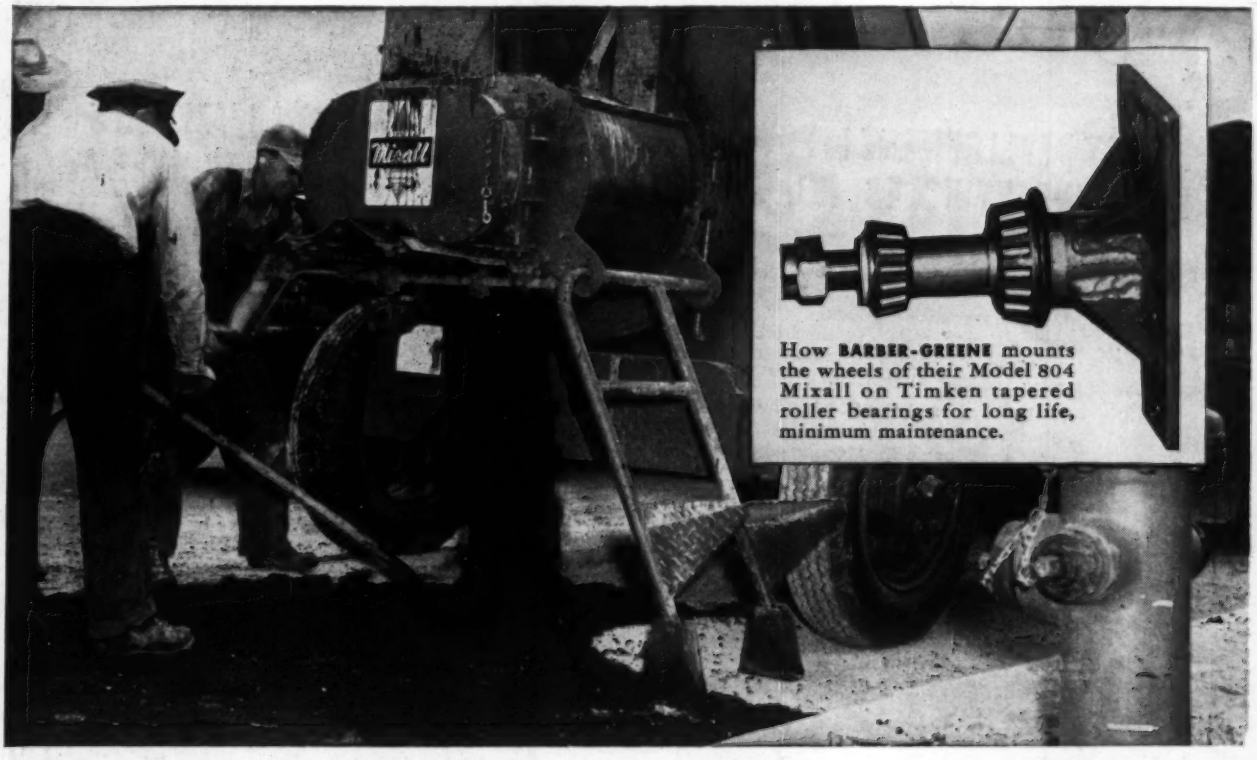
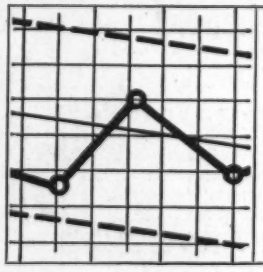
This symbol on a product means its bearings are the best.



How **BARBER-GREENE** mounts the wheels of their Model 804 Mixall on Timken tapered roller bearings for long life, minimum maintenance.



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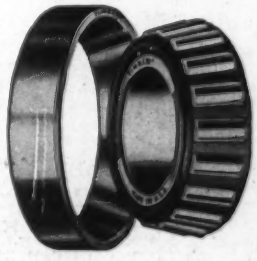

NOT JUST A BALL ◯ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ⬭ AND THRUST ⬭ LOADS OR ANY COMBINATION